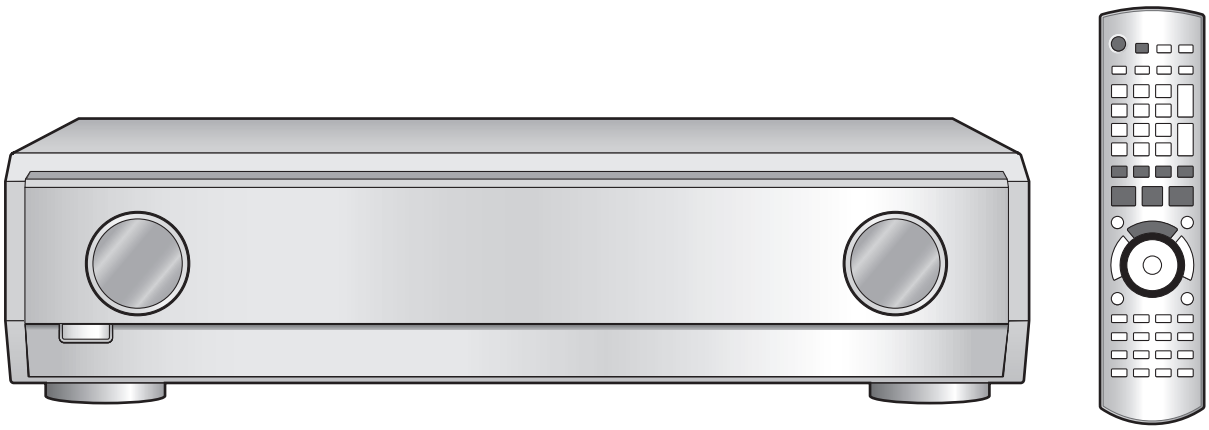
Panasonic

Operating Instructions

AV Control Receiver

Model No. **SA-XR700**



HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

EZSync HDAVI Control

XM READY

ENERGY STAR

As an ENERGY STAR® Partner*, Panasonic has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

* For Canada only: The word “Participant” is used in place of the word “Partner”.

If you have any questions, contact
1-800-211-PANA (7262) in the U.S.A. or 1-800-561-5505 in Canada.

For the U.S.A. only
The warranty can be found on page 50.
For Canada only
The warranty can be found on page 51.

Dear customer

Thank you for purchasing this product.
Before connecting, operating or adjusting this product, please read the instructions completely.
Please keep this manual for future reference.

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

THE FOLLOWING APPLIES ONLY IN THE U.S.A.

FCC Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:
Panasonic Corporation of North America
One Panasonic Way
Secaucus, NJ 07094
Telephone No.: 1-800-211-7262

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

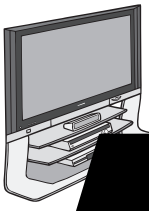
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

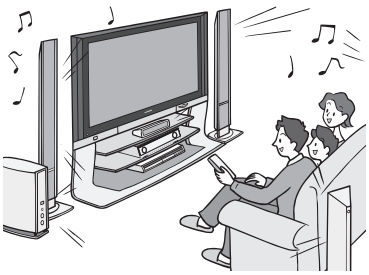
WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

The socket outlet shall be installed near the equipment and easily accessible.
The mains plug of the power supply cord shall remain readily operable.
To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

Enjoyin





Supplied accessories

Use numbers indicated in parentheses when asking for replacement parts.
(Product numbers correct as of July 2006. These may be subject to change.)
Only for the U.S.A.: to order accessories, refer to "Accessory Purchases" on page 50.
Only for Canada: to order accessories, call the dealer from whom you have made your purchase.

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XM® Satellite Radio

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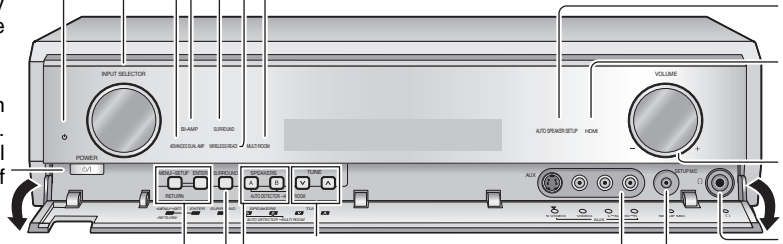
Control guide

This unit



For selecting input sources (pages 12 and 26)

Standby indicator (⏻)
When the unit is connected to the household AC outlet, this indicator lights up in standby mode and goes out when the unit is turned on.

[⏻/I, POWER]
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

For MENU operations (pages 32, 33, 41 and 44)
For SETUP operations (pages 20, 22, 34 to 38 and 47)

For switching the surround function on and off (pages 12 and 26)

Lights on when ADVANCED DUAL AMP is on (page 27)
Lights on when BI-AMP is on (page 27)
Lights on during surround playback (pages 12 and 26)
Lights on when the digital transceiver is in (page 21)
Lights on during MULTI ROOM playback (page 27)

Lights on during the auto speaker setup (page 24)
Lights on while communicating through HDMI connections (page 12)
For adjusting volumes (pages 12 and 26)

For tuning the radio and selecting preset stations (pages 40 to 44)
For selecting front speakers (pages 11, 12, 24, 26 and 27)
For detecting speakers automatically (page 10)

For connecting headphones (page 38)
For connecting the setup microphone (page 24)
For connecting a video camera etc. (page 19)

Display

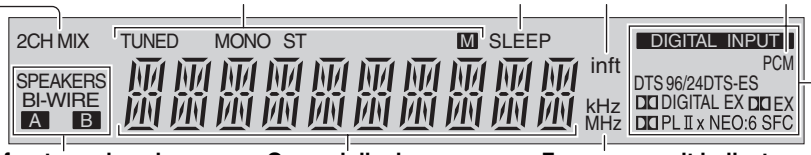
Lights on when 2-channel mix is functioning

Radio display

Sleep timer indicator

Unit display

Lights on when PCM FIX is selected



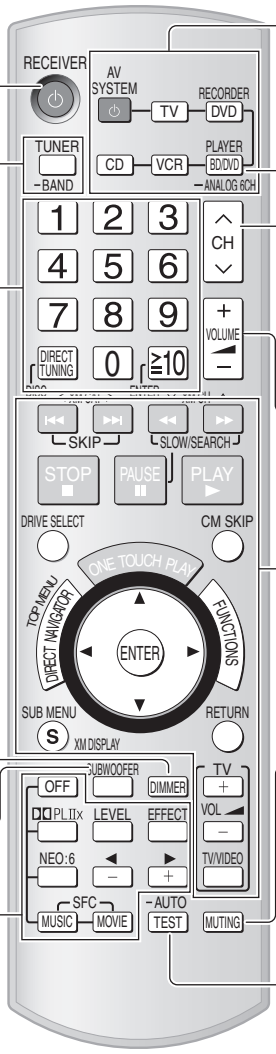
Input signals (digital audio) (page 39)

Displays front speakers in use

General display

Frequency unit indicators

Remote control



Power button

For selecting tuner/ For switching FM, AM or XM (pages 40, 42 and 43)

For inputting channels
TV (page 45)
DVD recorder (page 45)
VCR (page 46)
For selecting a track or chapter
DVD recorder (page 45)
DVD player (page 46)
For selecting a track
CD player (page 47)
For inputting the station frequency/ For selecting a channel
TUNER (pages 40 to 44)

For dimming the display light (page 31)

For adjusting the subwoofer level (page 31)

For listening to surround sounds (pages 28 to 30)

For switching an input source on and off/ Source switching/ Switching remote control modes (pages 45 to 47)

For playing DVD-Audio sources on 6 channels (page 27)

For selecting a channel
TV (page 45)
DVD recorder (page 45)
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TUNER (pages 41 and 44)

For adjusting volumes (pages 13 and 31)

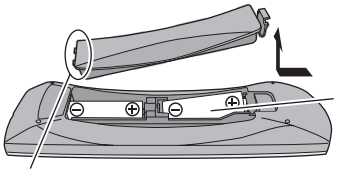
For operating other equipment (pages 13 and 45 to 47)

For silencing speakers temporarily (page 31)

For confirming speaker output (page 11)/ For auto speaker setup using the setup microphone (page 24)/ For adjusting speaker volumes (page 31)

Batteries

Press on the tab to open.



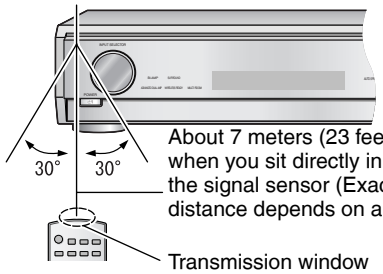
(R6/LR6, AA)

Place this side in before the other side when you close.

- Insert so the poles (⊕ and ⊖) match those in the remote control.
- Do not use rechargeable type batteries.
- Do not heat or expose to flame.

Use

Remote control signal sensor



About 7 meters (23 feet) or less when you sit directly in front of the signal sensor (Exact distance depends on angles).

Transmission window

Caution

- Do not place an object between the signal sensor and the remote control.
- Do not place the signal sensor under direct sunlight or the strong light of an inverter fluorescent lamp.
- Keep the transmission window and the unit's sensor free from dust.

When you set the unit in a cabinet
The remote controlling range may decrease depending on the thickness or colors of glass cabinet doors.

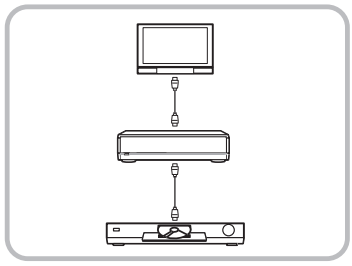
Quick guide

This section introduces basic connection, setting and playback methods for enjoying the Home Theater.

- Turn off all equipment before making any connections.
- Peripheral equipment sold separately unless otherwise indicated.
- To connect equipment, refer to the appropriate operating instructions.

Step 1 Connect a TV and a DVD recorder/DVD player using HDMI cables (page 7)

Using HDMI connections, you can easily enjoy high-quality pictures and sounds.



To make HDMI connections, you need an HDMI terminal on both your TV and DVD recorder (DVD player).
When one of the two or both equipment lacks an HDMI terminal:
You can connect cables to S video terminals (page 15).
You can connect cables to component terminals (page 16).
You can connect cables to video terminals (in the absence of component or S video terminals) (page 14).

You install and connect speakers in this step.

Using automatic speaker detection, you can easily set speakers.

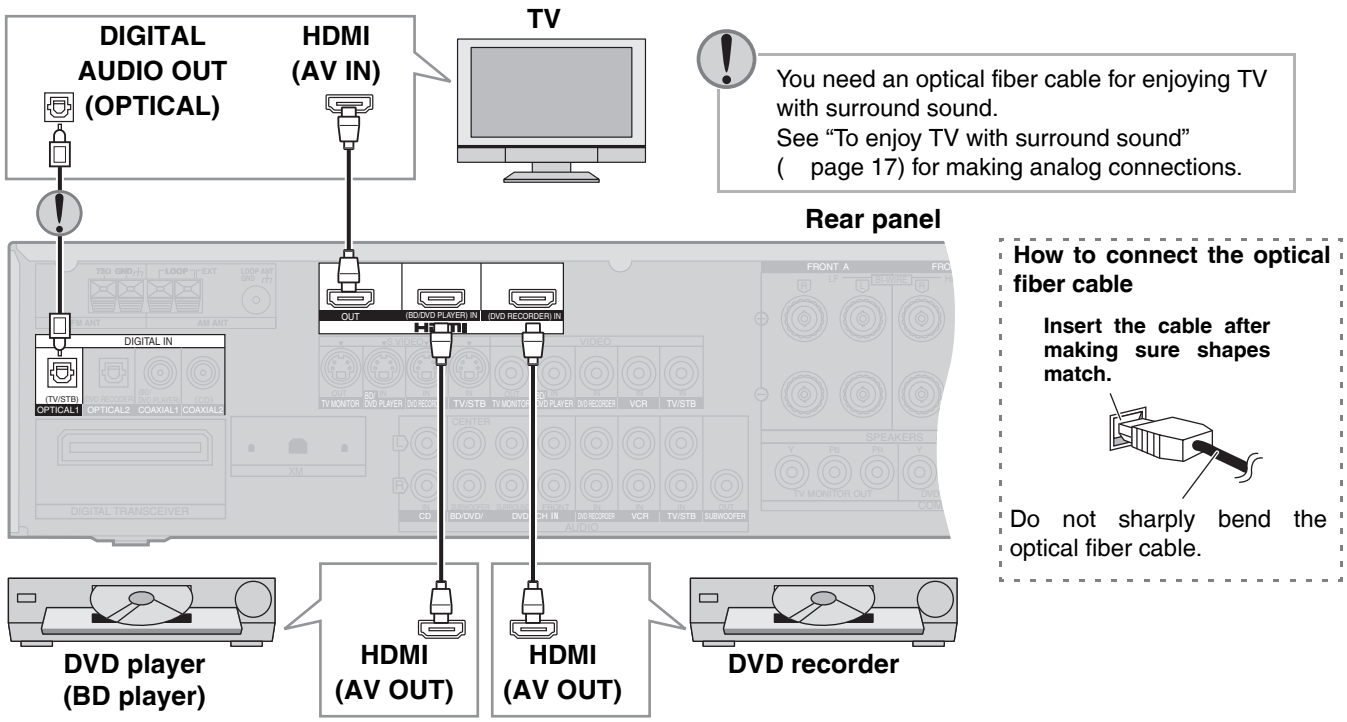
After speakers are set, you can confirm audio output using the test signal.

You can enjoy DVDs with surround sound.

Step 1 Connect a TV and a DVD recorder/DVD player using HDMI cables

Connection cable (All cables are sold separately)

Video and Audio cable	Audio cable
HDMI Cable (It is recommended that you use Panasonic's HDMI cable.) [Recommended part number: RP-CDHG15 (1.5 m), RP-CDHG30 (3.0 m), RP-CDHG50 (5.0 m) etc.]	**Optical fiber cable**


DIGITAL AUDIO OUT (OPTICAL)
HDMI (AV IN)
TV
You need an optical fiber cable for enjoying TV with surround sound.
See "To enjoy TV with surround sound" (page 17) for making analog connections.
Rear panel
How to connect the optical fiber cable
Insert the cable after making sure shapes match.
Do not sharply bend the optical fiber cable.
DVD player (BD player)
HDMI (AV OUT)
HDMI (AV OUT)
DVD recorder

HDMI connection

The HDMI input terminal on the unit's rear is made to specifications that presume connection of a DVD recorder/DVD player. When other equipment is connected, sounds may not come out of the unit, or pictures shown on the equipment (TV) connected to the HDMI output terminal may be disrupted.
In such cases, see page 19 and make connections other than HDMI.

You can hear DVD sounds from speakers on the TV when you turn off the unit connected in the way shown above (standby through function). This convenient function enables you to enjoy DVDs late at night.

Note

HDMI stands for High-Definition Multimedia Interface.

- The HDMI cable enables you to transmit digital audio and video signals using a single cable. You can also transmit control signals using HDMI connections.
- The unit complies with CPPM*1. It can digitally transmit surround sound in DVD-Audio sources.
  *1 Content Protection for Prerecorded Media (CPPM): This copyright protection technology prevents copying of DVD-Audio files.
- We recommend using Panasonic cables 5.0 meters long or shorter for enjoying 1125p*2 (1080p) pictures. They prevent picture degradation.
  *2 1125p (1080p): a progressive (non-interlace) scanning system that sends 1,125 scan lines every 1/60 second.
- The audio signal transmitted through HDMI takes priority when you use both HDMI and digital terminals (pages 14 to 17) for connection.

When the HDMI terminal does not exist on your TV, DVD recorder (DVD player) or both

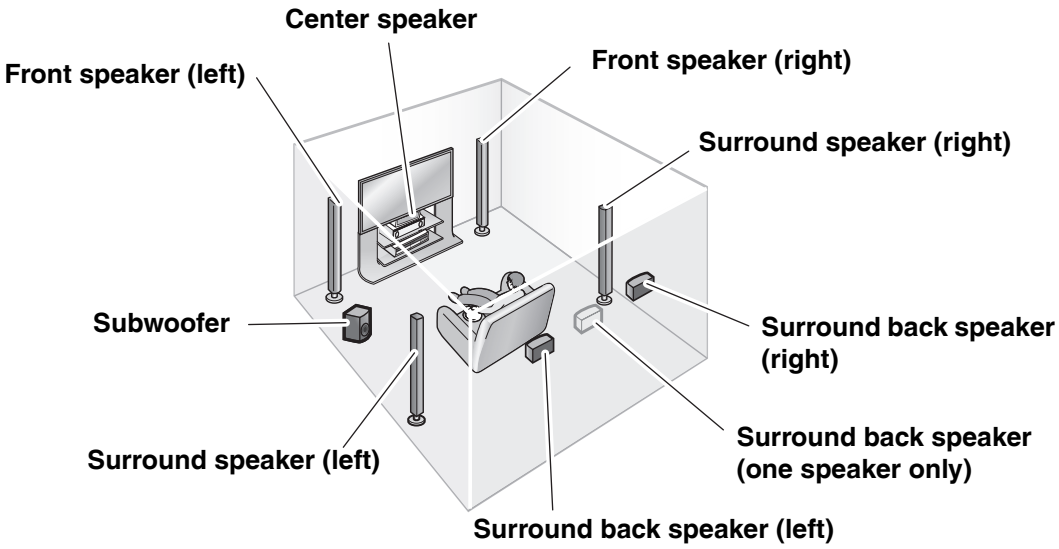
You can connect cables to S video terminals.	See page 15.	Move on to "Connect speakers" (page 8) in the Quick guide.
You can connect cables to component terminals.	See page 16.	
You can connect cables to video terminals.	See page 14.	

Step 2 Connect speakers

The ideal placement is to set each speaker (excluding the subwoofer) the same distance away from the listening-viewing position. Measure the actual distance from each of the connected speakers to the listening-viewing position and perform steps instructed in “Setting distances” (page 35) or perform steps instructed in “Auto speaker setup using the setup microphone” (page 24) when you cannot install speakers the same distance away.

Example: Center speaker (1), front speakers (2), surround speakers (2), surround back speaker(s) (1 or 2) and subwoofer

This is a placement suited for playing 6.1-channel sources (Dolby Digital Surround EX and DTS-ES materials).
This placement offers 7.1/6.1-channel playback of 2-channel and 5.1-channel sources with the aid of Dolby Pro Logic IIx, NEO:6, and SFC technology.



Front speakers (left, right)
Place on the left and right of the TV at seated ear height so that there is good coherency between the picture and sound.

Center speaker
Place underneath or above the center of the TV. Aim the speaker at the seating area.
When you do not install the center speaker, sound assigned to it is distributed to front speakers and output from them.

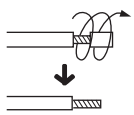
Surround speakers (left, right)
Place on the side of or slightly behind the seating area.
When you do not install surround speakers, sound assigned to them is distributed to front speakers and output from them.

Surround back speakers (left, right)
Place behind the seating area, about 1 meter (3 feet) higher than ear level.
When you do not install any surround back speaker, sound assigned to them is distributed to surround speakers or front speakers and output from them.

Subwoofer
The subwoofer can be placed in any position as long as it is at a reasonable distance from the TV.

How to connect speaker cables

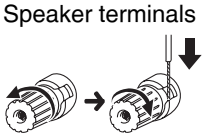
1



Remove the vinyl covering the tips of speaker cords by twisting it off.

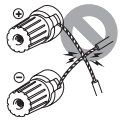
2

Speaker terminals



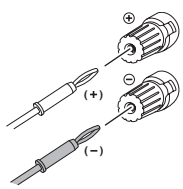
Note

- Connect speaker cords properly to terminals after making sure left and right, and ⊕ and ⊖. Improper connections may cause the unit to develop problems.
- Do not short-circuit speaker cords. The action may damage circuits.



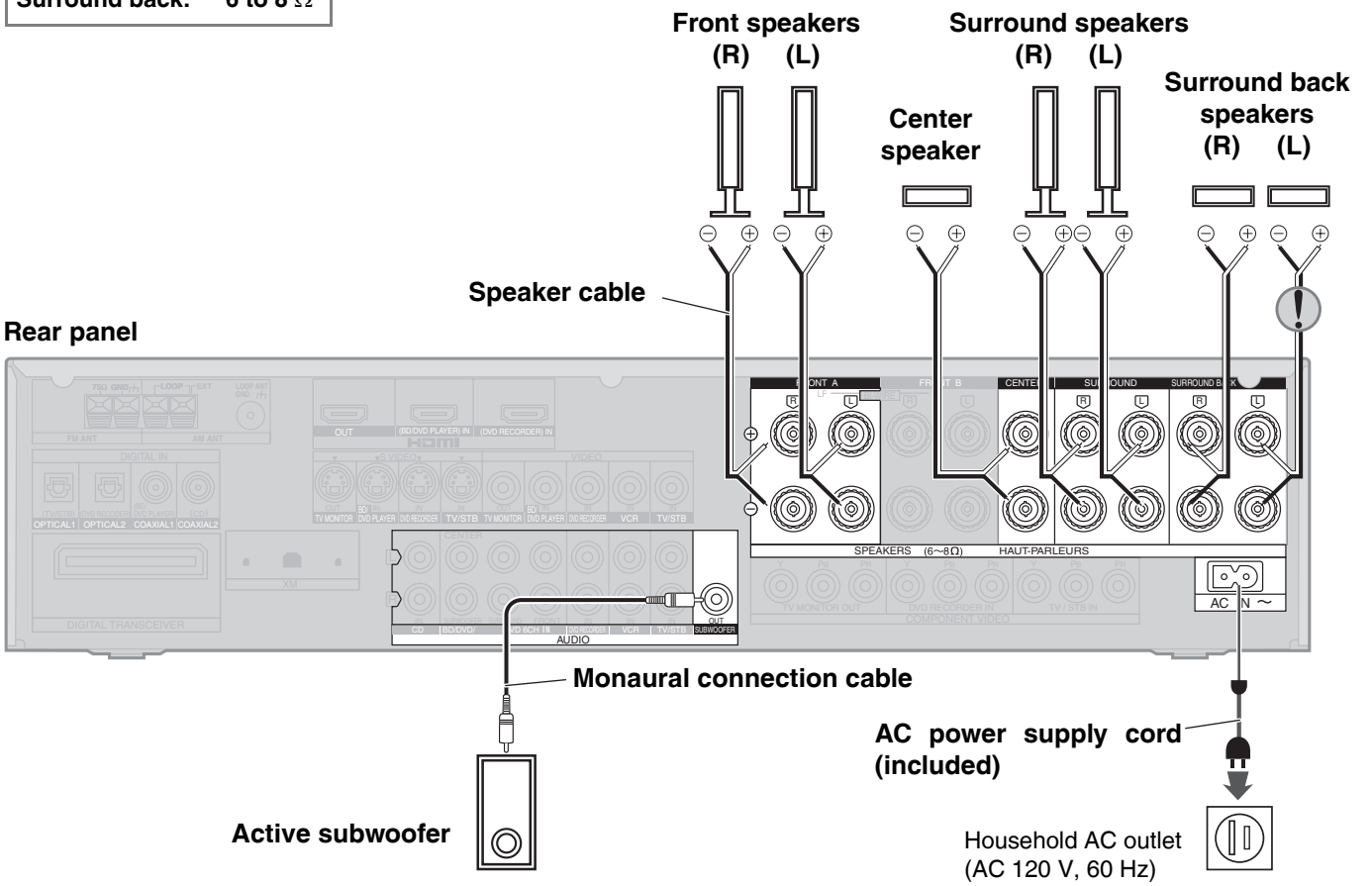
If using 4-mm plug

Turn speaker terminals clockwise and tighten them before inserting plugs into their holes.



Speaker impedance	
Front A:	6 to 8 Ω
Center:	6 to 8 Ω
Surround:	6 to 8 Ω
Surround back:	6 to 8 Ω

Use the terminal for the left speaker when you connect one surround back speaker only.



Connect AC power supply cord after all other cables and cords are connected.

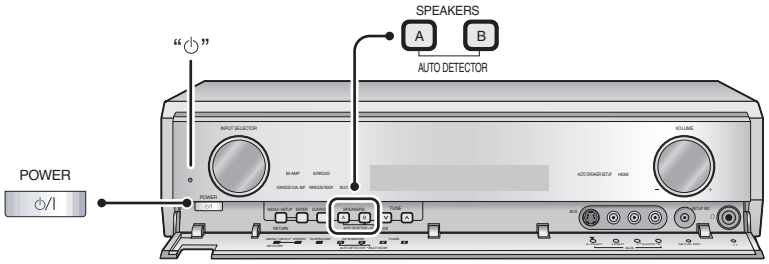
- The included AC power supply cord is for use with this unit only. Do not use it with other equipment.
- Do not use an AC power supply cord from any other type of equipment with this unit.
- The unit's settings remain effective after the AC power supply cord is removed from the household AC outlet.

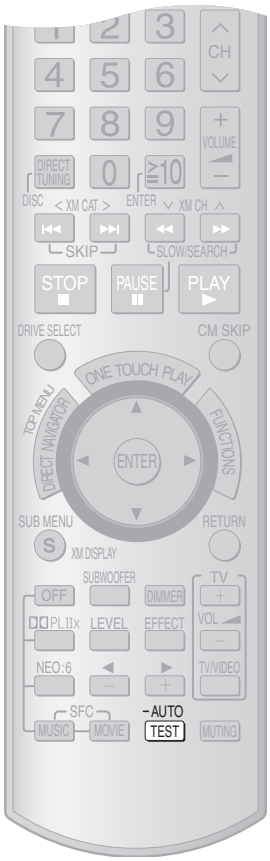
Note

Do not forget to take steps instructed in "Set speakers and test speaker output" (page 10) or "Auto speaker setup using the setup microphone" (page 24) after connecting a new speaker.

Step 3 Set speakers and test speaker output

The unit checks each speaker's connection status and make speaker settings automatically.





Detecting speakers automatically

1 To turn the unit on

Press POWER ⏻/I

- The standby indicator "⏻" goes off when you turn the unit on.

2 To check the speaker presence

Press SPEAKERS A B AUTO DETECTOR **simultaneously.**

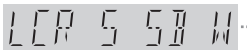
Automatic speaker detection starts.

The unit checks the center speaker, surround speakers, surround back speakers and the subwoofer in that order.
(The connection status for front speakers is always present.)

↓

The display shows the number of detected speakers (excluding the subwoofer).

↓



The display shows connected speakers.

(e.g.) ↓

When automatic detection is finished, the display returns to the original.

How speakers are displayed

L : Front left ***C*** : Center ***R*** : Front right ***S*** : Surround
SB : Surround back ***W*** : Subwoofer

"***WARNING***" messages may appear on the display depending on detection results.

CHECK CONNECTION TO SBL SPEAKER	The right surround back speaker was detected, but the unit did not detect the left surround back speaker. Use the terminal for the left speaker when you connect one surround back speaker only (page 9).
NEED TO CONNECT LS/RS SPEAKERS	The unit did not detect left and right surround speakers. Connect surround speakers as well when you connect surround back speakers to the unit.
CHECK CONNECTIONS TO LS/RS SPEAKERS	The unit did not detect one of the two surround speakers. Check speaker connections.

Note

- Automatic detection does not work well depending on speakers and cables. Make speaker settings manually in such cases (page 35).
- These settings remain effective after the unit goes off.
- The unit considers seven speakers and one subwoofer are connected to the unit (keeps factory settings) unless you perform these steps.
- Perform the above steps when you connect a new speaker.

Testing speaker output

Confirm audio output using the test signal after speakers are set.

1 To select "SPEAKERS A"

Press [SPEAKERS A] to switch "A" on.

When only the SPEAKERS A setting is selected

When SPEAKERS A and SPEAKERS B settings are selected

- If you select SPEAKERS B only, the test signal will not be output.

2 To test speaker output

Press [AUTO TEST]

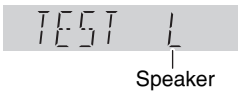
- **Adjust the volume of front speakers to the normal listening level.**
- **The test signal is output from one speaker at a time for two seconds in the order shown below.**

L* → *C* → *R* → *RS* → *SBR* → *SBL* → *LS* → *SW

or

L* → *C* → *R* → *RS* → *SB* → *LS* → *SW

(When you connect one surround back speaker)



Speaker

How speakers are displayed

L :	Front left	***C*** : Center	***R*** : Front right
RS :	Surround right	***LS*** :	Surround left
SBR :	Surround back right	***SBL*** :	Surround back left
SB :	Surround back (When you connect one surround back speaker)		
SW :	Subwoofer		

3 To stop the test signal

Press [AUTO TEST]

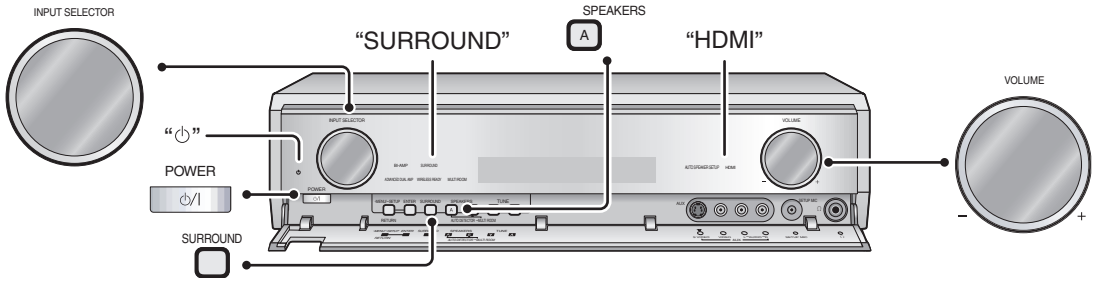
Note

- Unconnected speakers do not output the test signal.
- Check connections and perform automatic speaker detection once again when a connected speaker does not output the test signal. (pages 9 and 10)
- When bi-wire speakers are connected (page 20), press [SPEAKERS A] or [SPEAKERS B] to switch "A B" on.

To make detailed settings

To make various settings automatically	With the supplied setup microphone, the unit sets speaker distances, polarity, size, lowpass filter, frequency and levels automatically (page 24).
To set speakers the way you like	"Adjusting speaker volumes" (page 31) "Setting speakers and their sizes" (page 35) "Setting distances" (page 35) "Setting the lowpass filter" (page 35)

Step 4 Watch DVDs or TV



Preparation **Turn the TV on and switch the TV's input mode (to "HDMI" and others).**

1 To turn the unit on

Press POWER ⏻/I

The "SURROUND" indicator lights on (factory setting).

• The standby indicator "⏻" goes off when you turn the unit on.

2 To select "SPEAKERS A"

Press SPEAKERS A **to switch "A" on.**

3 To select "*DVR*", "*BD/DVD*" or "*TV/STB*"

Turn INPUT SELECTOR

• Select the connected terminal when the names of the terminal and equipment you wish to use for playback do not match.

Note

You can also select the input source using the remote control (page 5).

4 Watch DVDs or TV

• The "HDMI" indicator lights on while communicating through HDMI connections.

5 To adjust the volume

Turn VOLUME

Volume range:
– – *dB* (minimum),
– *79dB* to ***0dB*** (maximum)

To finish watching

Be sure to reduce the volume and press [⏻/I, POWER] to turn the unit to standby.

Note

Playback modes switch between 2-channel stereo and surround each time you press [SURROUND].
The "SURROUND" indicator is off during 2-channel stereo playback.

When you play back sources using a CD player and other equipment

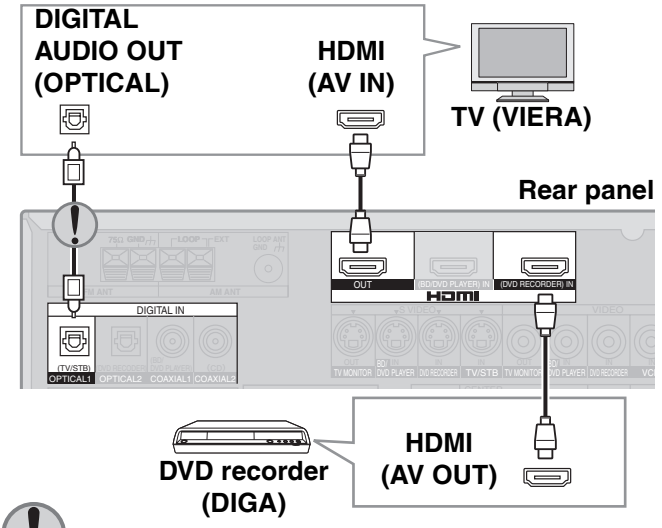
See page 26.

Control with HDMI (Ez Sync™ HDAVI Control)

What is Ez Sync HDAVI Control?
Ez Sync HDAVI Control is a convenient function that offers linked operations of this unit, and a Panasonic TV (VIERA) or DVD recorder (DIGA) under Ez Sync HDAVI Control. You can use this function by connecting the equipment with the HDMI cable. See the operating instructions for connected equipment for operational details.

Preparation

1 **Connect the unit to a Panasonic TV (VIERA) and DVD recorder (DIGA) under Ez Sync HDAVI Control using the HDMI cable.**
(It is recommended that you use Panasonic's HDMI cable. Non-HDMI-compliant cables cannot be utilized.)
2 **Make settings in the menu for the TV (VIERA) to activate linked Ez Sync HDAVI Control operations.**
3 **Perform the following steps to make sure the unit accurately identifies connected equipment.**
1) Turn all equipment on.
2) Switch the TV (VIERA) off and then put it back on.
3) Switch the unit's input to "*DVR*" and make sure the TV (VIERA) correctly shows pictures.
(Take these steps after changing connections or settings.)



You need an optical fiber cable for enjoying TV with surround sound.

Enjoying the Home Theater through one-touch operations

Aim the remote control at the DVD recorder (DIGA) and press ONE TOUCH PLAY

The following operations are automatically performed when you just press [ONE TOUCH PLAY].
1 The DVD recorder goes on and starts playing back the recorded media in the selected drive (e.g. HDD, DVD).
2 The TV goes on and the TV input changes.
3 Surround playback starts after the unit is turned on and the input source for the unit switches to "*DVR*".

☞ **To adjust the volume:** Press VOLUME +/−
You can also adjust the volume on your TV (VIERA)'s remote control.
(A message informing the action appears on your TV while you adjust the volume.)

- Press [I◀◀ SKIP] to start playing a DVD disc or a recorded TV program again when playback does not start from the beginning.

Note

- Only this unit turns off when you shut it down. Other connected equipment compatible with Ez Sync HDAVI Control stay on.
- Audio output automatically switches to speakers on your TV (VIERA) when you turn the unit off.
  Audio output from the DVD recorder (DIGA) switches from speakers on the TV (VIERA) to speakers connected to the unit when you turn the unit on.
- This unit goes from off to on, and speakers connected to this unit start making audio output when you set the TV (VIERA) to output sounds from the unit.
- This unit automatically goes off when you switch your TV (VIERA) off. (This operation is unavailable when you set the input source as "*TUNER*" or "*CD*" on this unit.)
- The input for the unit switches automatically to "*DVR*" when a source is played back on the DVD recorder.
- When pictures arrive after sounds, select "*ON*" in "Adjusting audio timing to video timing" (page 38).
- To set the unit against Ez Sync HDAVI Control, see page 37.
- The remote control supplied with the TV (VIERA) may not work on the equipment connected to the BD/DVD player terminal when you connect Ez Sync HDAVI Control compatible equipment to both of the unit's two HDMI input terminals.

☞ **Enjoying sounds from the TV**
The input source for the unit switches to "*TV/STB*" when you select a TV channel or operate the TV in other ways (page 45).

DVD player, VCR)

ction cable

White (L)
Red (R)

• To enjoy TV with surround sound, make additional connections instructed on page 17.

VIDEO INDICATED
AUDIO OUT
(COAXIAL)

VIDEO
OUT

DIGITAL
AUDIO OUT
(OPTICAL)

VIDEO
OUT

AU

DVD player
(BD player)

DVD recorder

How to connect the optical fiber cable

Insert the cable after making sure shapes match.

Do not sharply bend the optical fiber cable.

Note

- Turn off all equipment before making any connections.
- Peripheral equipment sold separately unless otherwise indicated.
- To connect equipment, refer to the appropriate operating instructions.

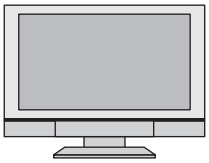
Connecting cables to S video and audio terminals (to use the TV, DVD recorder, DVD player)

Connection cable (All cables are sold separately)

Video cable	
S VIDEO connection cable	
Audio cable	
Optical fiber cable	**Coaxial cable**

Changing the digital input settings
For example, you can connect the unit to a DVD player that makes optical output only by performing the steps instructed in “Changing the digital input settings” (page 37).

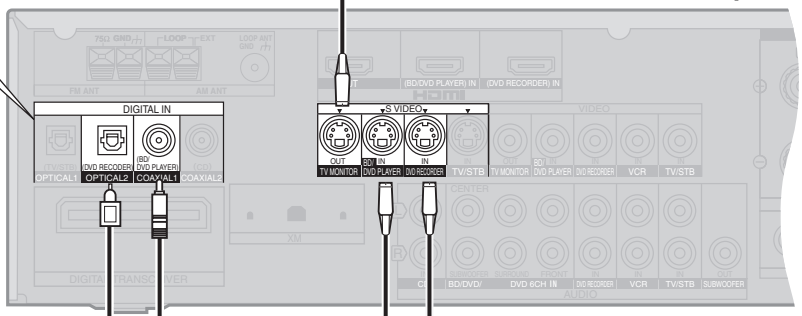
S VIDEO IN



TV

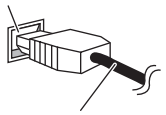
- To enjoy TV with surround sound, make additional connections instructed on page 17.

Rear panel



How to connect the optical fiber cable

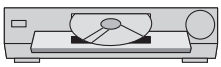
Insert the cable after making sure shapes match.



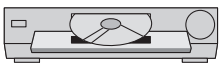
Do not sharply bend the optical fiber cable.

DIGITAL AUDIO OUT (COAXIAL) **S VIDEO OUT**

S VIDEO OUT **DIGITAL AUDIO OUT (OPTICAL)**



DVD player (BD player)



DVD recorder

Note

- The input video signal can be sent out through an output terminal of the same type only.
- See page 19 for connecting the unit to a cable box or satellite receiver.

Connections

Connecting cables to component and audio terminals (to use the TV and DVD recorder)

The component video terminals can produce more accurate colors than the S video terminals (page 15).

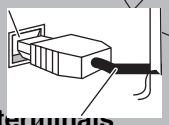
Connection cable (All cables are sold separately)

Video cable	Audio cable
Video connection cable	**Optical fiber cable**

TV

Rear panel

How to connect the optical fiber cable



Do not sharply bend the optical fiber cable.

Component video terminals

DVD recorder

DIGITAL AUDIO OUT (OPTICAL)

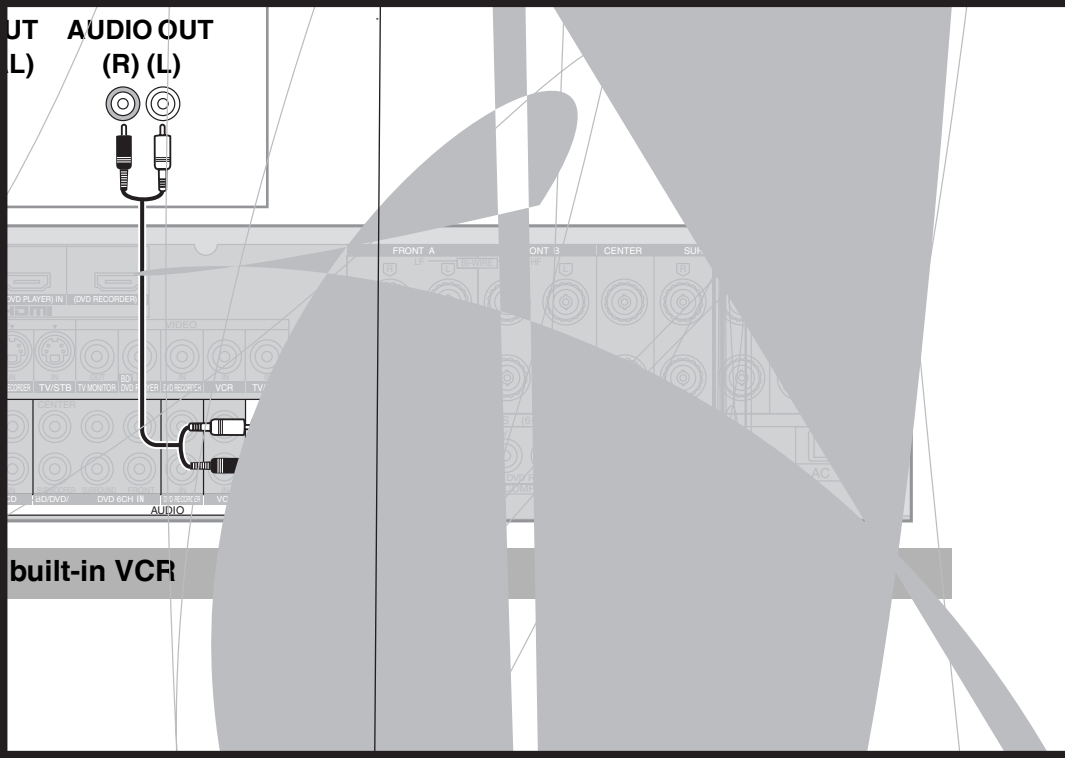
COMPONENT VIDEO OUT

The component video terminals (color-difference video terminals) output red (P_R), blue (P_B), and luminance (Y) signals separately. The terminals reproduce colors with greater accuracy for this reason.

terminal of the same type only.

ellite receiver.

nd preference.



built-in VCR

Connections

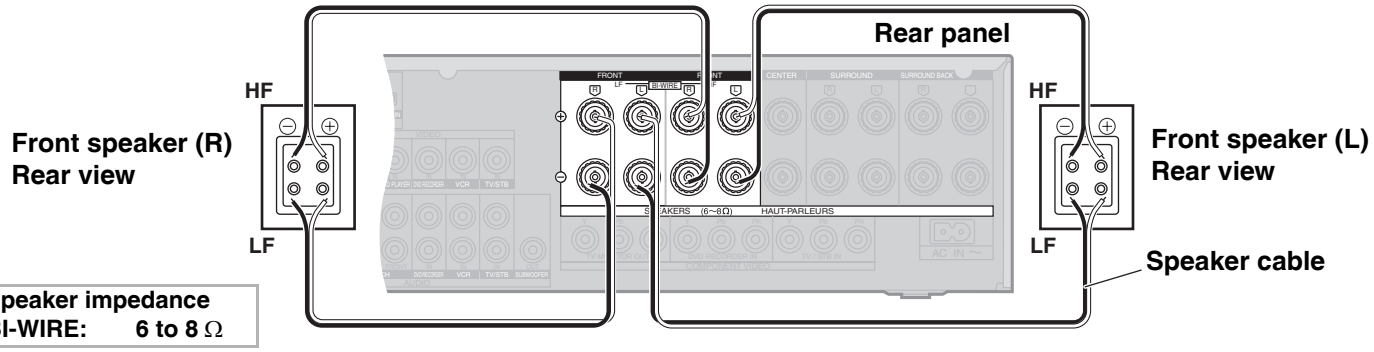
Connecting speakers

See pages 8 and 9 for placing and connecting your speakers according to their number.

To connect bi-wire speakers

Bi-wire speakers have separate connection terminals for high frequency and low frequency signals.

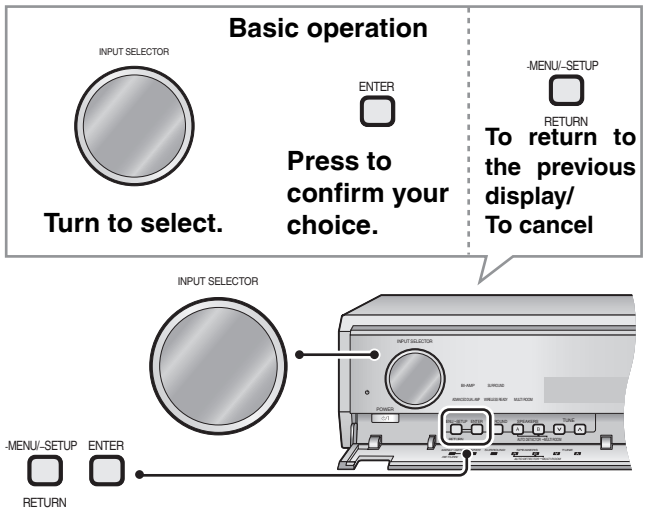
- Bi-wiring prevents high frequency and low frequency signals from interfering with each other. It offers playback in high audio quality.
- HF and LF stand for high frequency and low frequency, respectively.
- Make sure to select "***YES***" in "Making bi-wire setting" (below) when you connect the unit to bi-wire speakers. The speakers do not produce adequate sounds unless you make this setting.



Note

- Make sure to connect speakers' HF terminals with the unit's FRONT B terminals, and speakers' LF terminals with the unit's FRONT A terminals.
- Different amps for high frequency and low frequency signals produce BI-AMP stereo sounds that are clearer and higher in audio quality when you play on 2 channels sources containing analog audio and 2-channel PCM signals (page 27).

Making bi-wire setting



1 Press and hold [-MENU/–SETUP, RETURN] for about 2 seconds to enter the SETUP.

2 Select and confirm the choice.

3 Select and confirm the choice.

YES : When bi-wire speakers are connected
NO : When bi-wire speakers are not connected
Factory setting: ***NO***

4 Select and finish the setting.

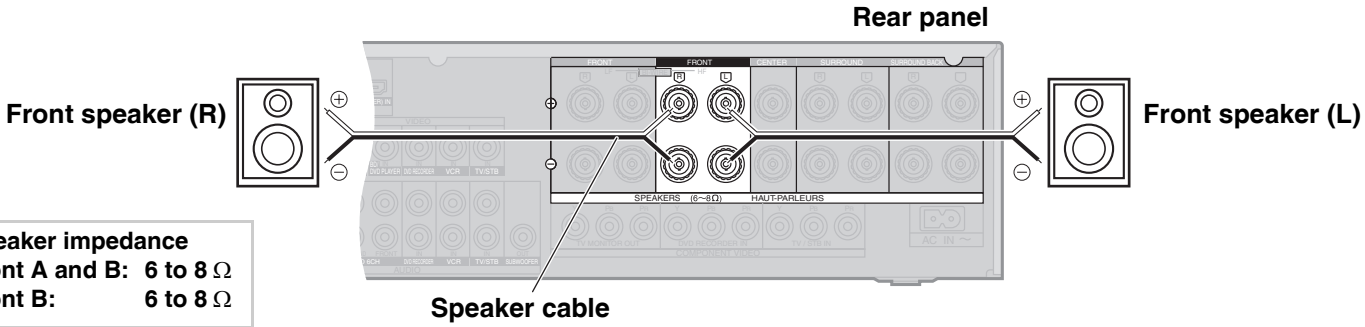
Note

See "Making BI-AMP settings" (page 36) for detailed settings.

- Turn off all equipment before making any connections.
- Peripheral equipment sold separately unless otherwise indicated.
- To connect equipment, refer to the appropriate operating instructions.

To connect a second pair of front speakers

Make the following connections when you wish to install a second pair of speakers in another room and enjoy music there.



Speaker impedance
Front A and B: 6 to 8 Ω
Front B: 6 to 8 Ω

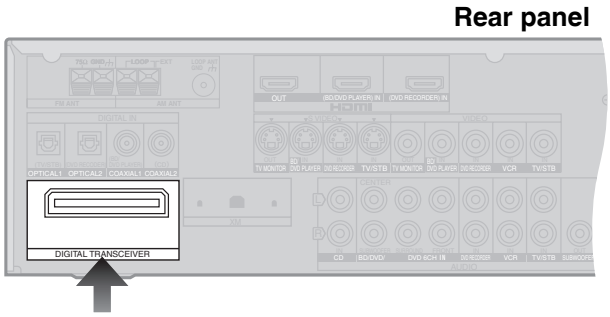
Note

- "Auto speaker setup using the setup microphone" (page 24) is unavailable for speakers connected to the FRONT B terminals. When "SPEAKERS B" is selected, the unit automatically switches the selection to "SPEAKERS A" only and uses the setting for the auto speaker setup.
- Select "SPEAKERS B" when you wish to enjoy sounds from speakers connected to the FRONT B terminals (page 27).
- If you select "SPEAKERS B" only, playback is 2-channel stereo. When a surround source is played, the sounds intended for all the speakers are played through the front left and front right speakers (**2CH MIX**).

Making surround speakers wireless with SH-FX50/SH-FX60

You can connect left and right surround speakers wirelessly by using Panasonic SH-FX50/SH-FX60 (A set consisting of a digital transceiver and a wireless system sold separately) with the unit.
To use this option, insert the digital transceiver into the unit's digital transceiver terminal and connect surround speakers to SH-FX50/SH-FX60's wireless system.

- See SH-FX50/SH-FX60's operating instructions for details.



The "WIRELESS READY" indicator stays on while the digital transceiver is in.
The indicator may stay off, go off or flash in the following cases.
The indicator stays off:
- When the "SURROUND" indicator is off
- When surround speakers are set as absent (page 35)

The indicator flashes:
- When radio waves are interrupted (when SH-FX50/SH-FX60 is off)

Note

- Audio output changes as follows when you use surround speakers wirelessly.
  - The maximum number of playback channels is 5.1. Surround back speakers become unavailable. Sounds assigned to them are consolidated and output from surround speakers on the left and right.
  - Left and right surround terminals on the unit make no audio output. (No audio is output from the terminals while the "WIRELESS READY" indicator is flashing.)
- Make sure to turn the unit off before inserting or removing the digital transceiver.
- Surround speakers are set as connected when you perform automatic speaker detection (page 10).
- SH-FX60's "2-way wireless" function becomes unavailable.
- This function is unavailable when you select "***MULTI ROOM***" in "Making MULTI ROOM setting" (page 22).

☞ **To perform the auto speaker setup using the supplied setup microphone:**
Settings made with the setup microphone are canceled when you insert or remove the transceiver after performing the setup.

Connections

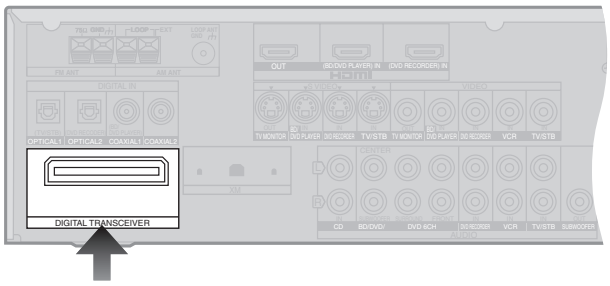
Connecting speakers

Sending audio to another room with SH-FX80

You can enjoy music wirelessly in another room (MULTI ROOM) by installing Panasonic SH-FX80 (a set consisting of a digital transceiver and a wireless system sold separately).
Insert SH-FX80's digital transceiver into the unit's digital transceiver terminal.

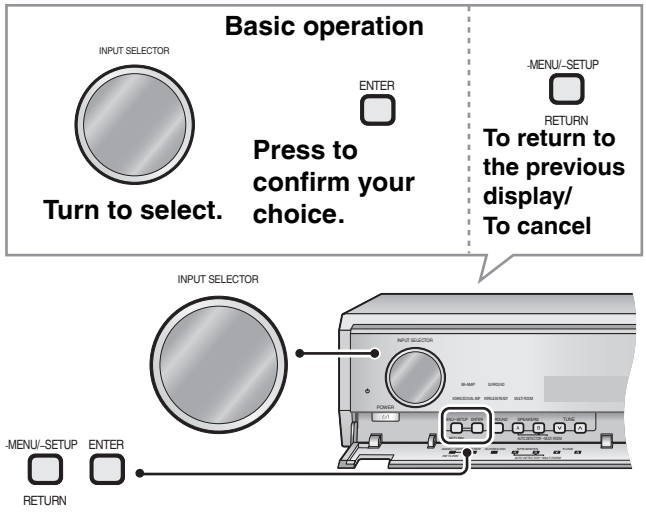
- See SH-FX80's operating instructions for details.
- To use this function, make sure to select "***MULTI ROOM***" in "Making MULTI ROOM setting" (below). The speakers do not produce adequate sounds unless you make this setting.

Rear panel



- Make sure to turn the unit off before inserting or removing the digital transceiver.

Making MULTI ROOM setting



1 Press and hold [-MENU/–SETUP, RETURN] for about 2 seconds to enter the SETUP.

2 Select and confirm the choice.

-WIRELESS-

3 Select and confirm the choice.

-MULTI ROOM-

MULTI ROOM : when SH-FX80 is connected
SURR SPKR : when SH-FX50/SH-FX60 is connected

Factory setting: ***SURR SPKR***

4 Select and finish the setting.

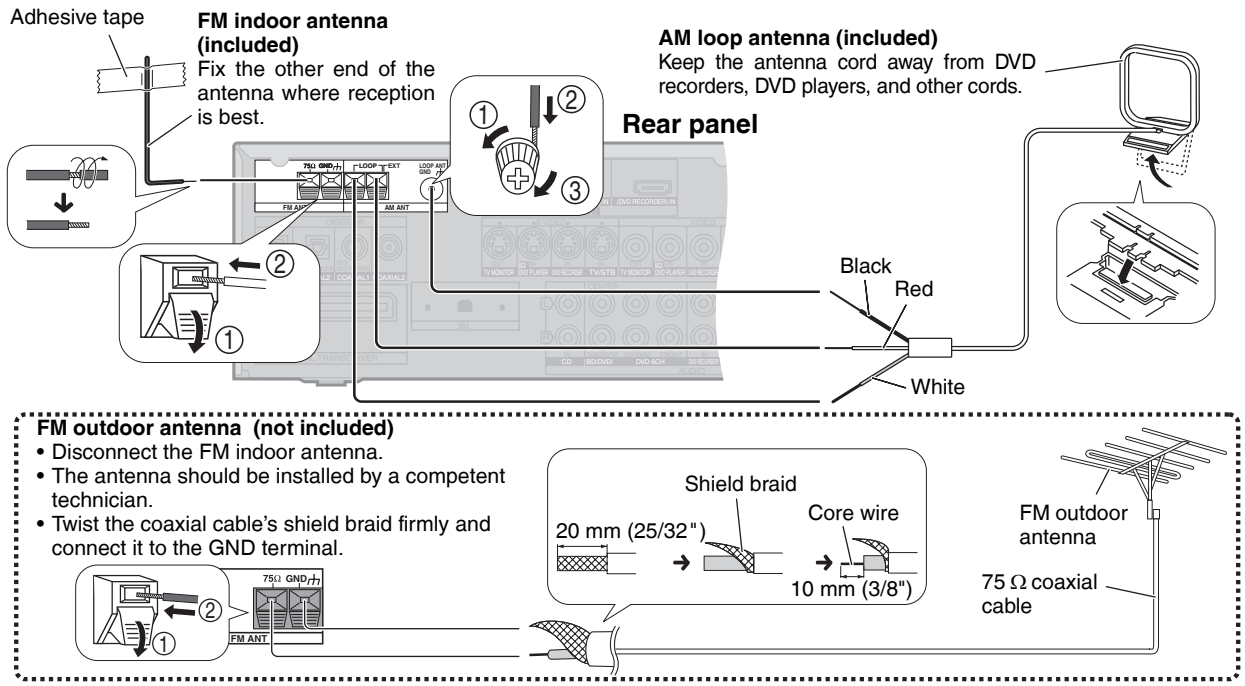
-EXIT-

Note

- See page 27 to enjoy music with MULTI ROOM.
- Settings made with the setup microphone are canceled when you change the "***SURR SPKR***" or "***MULTI ROOM***" setting.

- Turn off all equipment before making any connections.
- Peripheral equipment sold separately unless otherwise indicated.
- To connect equipment, refer to the appropriate operating instructions.

Connecting antennas


Adhesive tape
FM indoor antenna (included)
Fix the other end of the antenna where reception is best.
AM loop antenna (included)
Keep the antenna cord away from DVD recorders, DVD players, and other cords.
Rear panel
Black
Red
White
FM outdoor antenna (not included)
• Disconnect the FM indoor antenna.
• The antenna should be installed by a competent technician.
• Twist the coaxial cable's shield braid firmly and connect it to the GND terminal.
Shield braid
Core wire
20 mm (25/32")
10 mm (3/8")
FM outdoor antenna
75 Ω coaxial cable
75Ω GND
FM ANT

Connecting XM Connect & Play antenna or XM Mini-Tuner and Home Dock

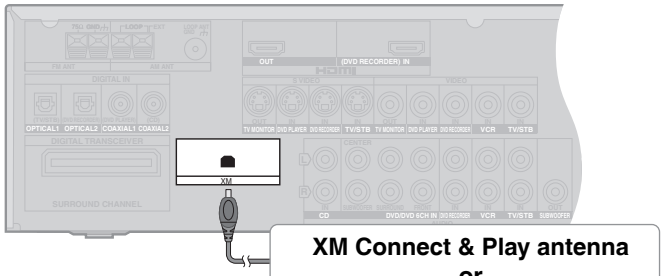
You can enjoy XM Satellite Radio on this unit by connecting the XM Connect & Play antenna, or XM Mini-Tuner and Home Dock (each sold separately).

• XM monthly service subscription is required to receive XM Satellite Radio.

XM Connect & Play antenna, or XM Mini-Tuner and Home Dock (each sold separately)

Refer to page 42 for optimizing the reception and information on how to subscribe to XM Satellite Radio.

Rear panel



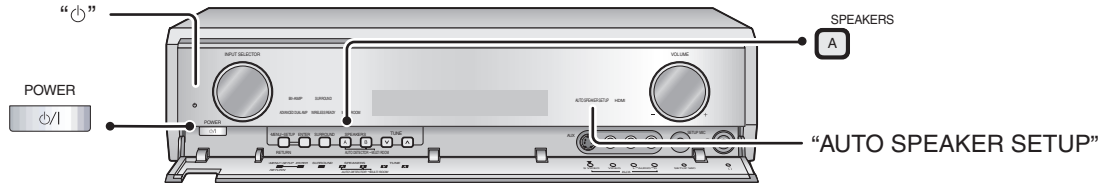
Auto speaker setup using the setup microphone

Using the supplied setup microphone, you can measure such items as distance from the seating area, polarity and size and make adjustment for connected speakers.

Keep quiet during the auto speaker setup. Conversational voice, air-conditioning noise and small sounds made by winds may cause an error or produce an incorrect setting. Speakers output loud test signals during the auto speaker setup. Make sure to keep little children out of the room.

Preparation

- **Mute the TV volume before starting the auto speaker setup.**
- **When the subwoofer is connected, make sure it is turned on. (There are subwoofer models that turn off automatically.) Set the subwoofer volume to the normal listening level.**



To cancel the setup halfway
Press [TEST, –AUTO].

1 To turn the unit on

Press POWER ⏻/I

- The standby indicator "⏻" goes off when you turn the unit on.

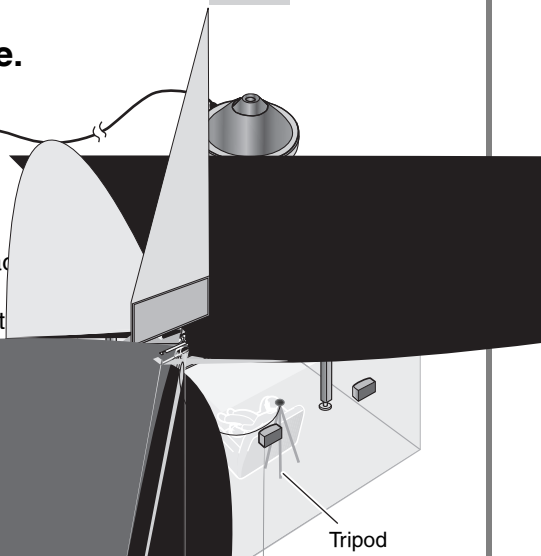
2 To select "SPEAKERS A"

Press SPEAKERS A **(on the unit) to switch "A" on.**

3 Connect the setup microphone.

4 Place the setup microphone.

- Place the setup microphone on a flat surfac
  stabilize it.
  Examples: a level bench sharing the height
  the seating area, a top section of a
- Set the microphone at
- Use a tripod (for
  best results.



5 To st

Pres AUTO TEST **2 seconds.**

- The "
- When a R SETUP" indicator lights on.
- The au a 5.1-channel system.
- The u hen you give a different
  operatio
- You can layed. The unit keeps the
  settings e

6 To finish

Press AUTO TEST

- The unit turns o g the setup.
- Unplug the setup

Note

- The setup microphone is sensitive to heat. Keep it away from di on top of the unit.
- These settings remain effective after the unit goes off.
- The setup microphone jack is for use with the setup microphone on crophones.
- The volume may reach an extremely high level when you repeat the a
  When the auto speaker setup is finished, check the volume before star

Such factors as speaker types, room conditions and speaker placement may caus eaker size, lowpass filter frequency and other items differently for the same type of speakers or produce settings that differ from t cteristics of respective speakers.
When sound from speakers seems odd, check the following settings. When yo esirable settings, correct them manually.
• See "Setting speakers and their sizes", "Setting distances" and "Setting t pass filter" (page 35).

With the setup microphone, the unit automatically sets the following.

STEP1 ***DISTANCE*** : The unit measures the distance between each speaker and the seating area and corrects the sound delay in the seating area. The maximum speaker distance for correcting the delay is 45 feet (15 meters).
POLARITY : The unit checks the polarity of each speaker and, when the polarity is wrong, corrects it.
Select "***CHECK NO*** " in "Setting the unit against automatic polarity adjustment" (page 36) before starting the auto speaker setup when you do not want the unit to adjust polarity automatically.

STEP2 ***SIZE / FREQUENCY*** : The unit measures acoustic characteristics of the room including speaker characteristics (size and lowpass filter settings) and adjusts them.

STEP3 ***LEVEL*** : The unit checks the output level of each speaker and makes adjustment.

Error messages

When one of the following error messages appears, press [TEST, –AUTO] to cancel and perform the auto speaker setup again.

Message	Cause	Countermeasure
CONNECT MIC	• The setup microphone is not connected.	• Connect the setup microphone properly.
NO SIGNAL	• The setup microphone does not catch test signals.	• Check if the microphone is placed properly.
NOISY	• Loud noise is preventing measurement.	• Perform the auto speaker setup again when the room is quiet. • Turn off an air-conditioner and other equipment that are producing noise.
MEASURING ERROR	• A speaker is too far. • An error occurred from an unknown cause.	• Check speaker locations. • Perform the setup again.
CHECK CONNECTION TO SBL SPEAKER	• The right surround back speaker was detected, but the left surround back speaker was not detected.	• Connect to the left surround back speaker terminal when you connect only one surround back speaker. • Check the left surround back speaker's connections.
NEED TO CONNECT LS/RS SPEAKERS	• Surround back speakers were detected, but left and right surround speakers were not detected.	• Connect surround speakers as well when you connect surround back speakers.
CHECK CONNECTIONS TO LS/RS SPEAKERS	• Unable to detect one or both of the two surround speakers	• Check connections.
CHECK CONNECTIONS TO L/R SPEAKERS	• Unable to detect one or both of the two front speakers	• Check connections.
LOW SIGNAL	• Test signals from the speakers are too weak to allow accurate measurement with the microphone.	• Change the microphone location (height, direction etc.). • Check if there is any obstacle near a speaker that is blocking the test signals. • Set the subwoofer volume to the normal listening level.

Note

- You can also perform automatic speaker detection only (page 10).
- Speaker placement, speaker directions and other conditions may prevent correct setting.
- The unit sets the lowpass filter frequency at the value of the speaker capable of reproducing the lowest frequency signal among speakers judged as "SMALL".
- When left and right speakers differ in size, they are set as "SMALL".
- When surround speakers and surround back speakers differ in size, they are set as "SMALL".
- Left and right front speakers are set as "***LARGE*** " even if their size is "SMALL" when you perform the auto speaker setup without connecting the subwoofer.
- The connection status is set and the level is adjusted for the subwoofer.
- Ez Sync HDAVI Control (page 13) does not work during the auto speaker setup.
- The selection switches automatically to "SPEAKERS A" only when you perform the auto speaker setup without selecting "SPEAKERS A".
- The auto speaker setup is unavailable while muting (page 31) is on.
- The unit sets at 45 feet (15 meters) the distance of speakers located more than 45 feet (15 meters) away from the seating area. The set distance is displayed as "***OVER*** " (page 35).
- Speakers whose polarity was automatically adjusted are displayed with "**–**" such as "***L 10.0 –***" (page 35).
- Speaker settings made with the setup microphone are canceled when you perform automatic speaker detection (page 10).

☞ **When the "AUTO SPEAKER SETUP" indicator is off after the auto speaker setup:**
Auto speaker settings have been canceled as a result of various setting changes.

Speaker size

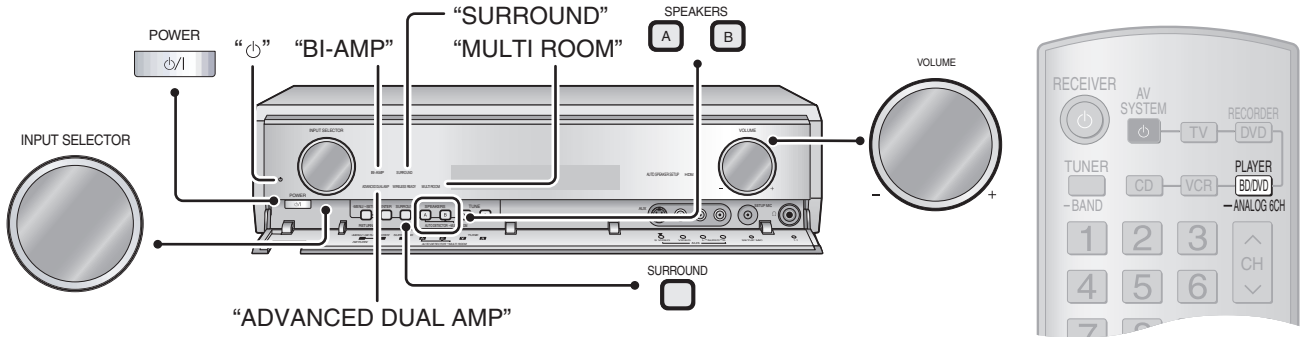
- LARGE: Speakers that can sufficiently reproduce the bass range down to 20 Hz.
- SMALL: Speakers that do not satisfy the requirements for LARGE speakers.

You can perform steps instructed in "Setting speakers and their sizes" (page 35) to change speaker sizes set automatically.

Lowpass filter

When the speaker size is "SMALL", the unit cannot sufficiently reproduce the bass range.
You can set the lowpass filter frequency according to the playback frequency range and arrange the unit to output the missing bass range from the subwoofer.

Enjoying the Home Theater



1 To turn the unit on

Press POWER ⏻/I

The "SURROUND" indicator lights on (factory setting).

- The standby indicator "⏻" goes off when you turn the unit on.

Note

Do not forget to perform speaker detection when you play a source with the unit for the first time or when you change the number of connected speakers (pages 10 and 24).

2 To select "SPEAKERS A"

Press SPEAKERS A **to switch "A" on.**

To select "SPEAKERS B"
Press [SPEAKERS B].
(page 27)

To use bi-wire speakers (page 20)

Press [SPEAKERS A] or [SPEAKERS B] to switch "A B" on.

To enjoy BI-AMP stereo sounds
See page 27.

3 To switch input sources

- Select the connected terminal when the names of the terminal and equipment you wish to use for playback do not match.

Turn INPUT SELECTOR

(e.g.)

TUNER FM → TUNER AM → TUNER XM → CD
AUX ← VCR ← DVR ← BD/DVD ← TV/STB

- When you select "***DVR***", "***DVD RECORDER***" scrolls across the display once.
- You can also select an input source using the remote control (page 5).

To use a DVD recorder with built-in VCR (page 17)
- To play a DVD: select "***DVR***"
- To play a video cassette: select "***VCR***"

4 Play the selected input source.

To switch between 2-channel stereo playback and surround playback
Press [SURROUND].

5 To adjust the volume

Turn VOLUME

Volume range:
– – dB (minimum),
–79dB to ***0dB*** (maximum)

To finish the Home Theater

Be sure to reduce the volume and press [⏻/I, POWER] to turn the unit to standby.

Digital signals this unit can play:
Dolby Digital (including Dolby Digital Surround EX), DTS (including DTS-ES and DTS 96/24) and PCM (page 39)

Note

- The unit memorizes whether [SURROUND] has been pressed on or off for each input source.
- The setting always switches from off to on when the input comes from a surround source in Dolby Digital, DTS or other formats.
- When you press [SURROUND] off while playing a surround source (excluding a DVD-Audio source that does not allow down-mixing), 2-channel mix (2CH MIX) activates.
  2-channel mix is canceled when you turn the unit off or when you switch input sources.
- The "SURROUND" indicator goes off when the sampling frequency for the input signal is higher than 96 kHz.
- The number of source channels appears on the display when a digital signal is input or input sources are switched. (Their number may not appear depending on the selected source.)

Subwoofer
Number of surround and surround back channels
Number of front and center channels

- The unit is compatible with linear PCM 8-channel surround signals decoded by the BD player and other equipment (up to 96 kHz/24 bit). See the operating instructions for equipment used for playback.

Listening to surround sound

You can add surround effects or create surround sound from 2-channel stereo sources.

Dolby Pro Logic IIx

- **Dolby Pro Logic IIx offers you surround playback of 2-channel stereo sources.**
- **The technology enables you to play 5.1-channel Dolby Digital and DTS sources on 7.1 channels (when two surround back speakers are connected to the unit) and on 6.1 channels (when only one surround back speaker is connected).**
- **The technology makes surround back channels available for the playback of Dolby Digital Surround EX sources.**

Press PLIIx to select one of the following modes.

(The modes switch each time you press the button.)

To cancel
Press OFF

MOVIE → MUSIC → EX or GAME

NEO:6

- **NEO:6 offers you surround playback of 2-channel stereo sources.**
- **The technology enables you to play 5.1-channel Dolby Digital and DTS sources on 6.1 channels.**

Press NEO:6 to select one of the following modes.

(The modes switch each time you press the button.)

To cancel
Press OFF

CINEMA → MUSIC

SFC (Sound Field Control)

You can add presence and spread to surround sound according to your choice when you use SFC with Dolby Digital, DTS, PCM or analog sources.

Use this mode when playing music.

MUSIC

(Music)

To cancel
Press OFF

Press SFC MUSIC to select one of the following modes.

(The modes switch each time you press the button.)

You can also select each of the following modes by pressing SFC MUSIC, and ◀ – ▶ + in succession.

LIVE → POP/ROCK → VOCAL
↑ ↓
PARTY ← DANCE ← JAZZ

Use this mode when playing movies.

MOVIE

(Movie)

To cancel
Press OFF

Press SFC MOVIE to select one of the following modes.

(The modes switch each time you press the button.)

You can also select each of the following modes by pressing SFC MOVIE, and ◀ – ▶ + in succession.

DRAMA → ACTION → SPORTS
↑ ↓
GAME ← MUSICAL

Note

- Speaker output levels set with the setup microphone (pages 24 and 25) apply to Dolby Pro Logic IIx, NEO:6 and SFC.
- Surround effects may be unavailable depending on sources.
- These settings remain effective after the unit goes off.
- The unit makes output through speakers according to the number of channels recorded in sources when you switch Dolby Pro Logic IIx, NEO:6, or SFC off.
  Example: The unit makes output through front speakers, the center speaker, surround speakers, and the subwoofer when you play 5.1-channel sources. Surround back speakers go silent.

Dolby Pro Logic IIx	
MOVIE	This mode produces good effects when you play commercial film titles in the Dolby Surround format. Sounds assigned to surround back channels become stereo in playback when you connect two surround back speakers to the unit. Dolby Pro Logic IIx is in this mode in the factory setting.
MUSIC	Use this mode when playing music.
EX (Dolby Digital EX)	This mode produces good effects when you play commercial film titles recorded in the Dolby Digital Surround EX format. This mode is effective on sources containing surround channels only. Sounds assigned to surround back channels become monaural in playback when you connect two surround back speakers to the unit. • "DD **DIGITAL EX**" or "DD **EX**" replaces "DD **PL** IIx" on the display when you connect one surround back speaker.
GAME	You can play games with dynamic sounds in this mode. This mode is effective on 2-channel stereo sources. This mode is unavailable when surround and surround back speakers are unconnected (pages 9, 10, 24 and 25) or when you set them as absent in "Setting speakers and their sizes" (page 35).
NEO:6	
CINEMA	Use this mode when playing movies.
MUSIC	Use this mode when playing music.
SFC (Sound Field Control)	
LIVE	Imparts the reflection and spread of a large concert hall.
POP/ROCK	Best suited for dynamic sound such as pop and rock music.
VOCAL	Best suited to enhance vocals.
JAZZ	Recreates natural sound ambience and direction.
DANCE	Enjoy a dance hall like audio effect.
PARTY	This mode gives you a stereo impression wherever your listening position may be. Music played in the mode sounds like background music at parties.
DRAMA	Best suited for dialogues in drama movies.
ACTION	Best suited for action movies with impact.
SPORTS	Enjoy a feeling like being at a live sporting event.
MUSICAL	Enjoy a feeling like being at a live musical performance.
GAME	Enjoy games with greater audio impact.

Note

Dolby Pro Logic IIx

Choices become "***EX***" or "***MUSIC***" when you connect one surround back speaker only.

NEO:6

- The "***CINEMA***" mode is available for 2-channel stereo Dolby Digital and DTS sources containing surround data. The "***MUSIC***" mode is available for the same sources containing no surround data.
- The subwoofer goes silent when you use NEO:6 on 2-channel stereo sources as long as all speakers have been set as "***LARGE***" in "Setting speakers and their sizes" (page 35).

SFC (Sound Field Control)

- In the "***PARTY***" mode, when only one surround back speaker is connected and the center speaker is unused, the surround back speaker goes off.
  The center speaker goes silent when you connect no surround back speaker to the unit.
- Sound may be distorted when the selected input source and SFC mode do not match.
  In such cases, lower the effect level in "Adjusting the effect level" (page 30) or select another mode through procedures instructed on page 28.

Remote controlling sound effects/convenient functions

See pages 28 and 29 for information about each mode.

Adjusting Dolby Pro Logic IIx's "*MUSIC*" mode

You can use the following modes when the input source is 2-channel stereo.

(Dimension Control)

You can make up for differences in the output level of the front and surround speakers.

Press EFFECT to select "*DIMEN*", and press ◄ – / ► + for adjustment.

Adjustment range: ***–3*** (More surround sound) to ***+3*** (More front sound)
Factory setting: ***0***

(Center Width Control)

In this mode, you can play music more naturally by adjusting sounds assigned to front and center speakers as a whole.

Press EFFECT to select "*C-WIDTH*", and press ◄ – / ► + for adjustment.

Adjustment range: ***0*** (Center becomes clearer) to ***7*** (Center becomes wider)
Factory setting: ***3***

(Panorama)

You feel like you are surrounded by music thanks to greater spread created by surround speakers.

Press EFFECT to select "*PANORAMA*", and press ◄ – / ► + for selecting "*ON*" or "*OFF*".

Factory setting: ***OFF***

Adjusting NEO:6's "*MUSIC*" mode

You can use the following modes when the input source is 2-channel stereo.

(Center Image Control)

In this mode, you can play music more naturally by adjusting sounds assigned to front and center speakers as a whole.

Press EFFECT to select "*C-IMAGE*", and press ◄ – / ► + for adjustment.

Adjustment range: ***0*** (Center becomes clearer) to ***5*** (Center becomes wider)
Factory setting: ***2***

Adjusting SFC (Sound Field Control)

Adjusting the output level

Press LEVEL to select a speaker, and press ◄ – / ► + for adjustment.

C (Center), ***RS*** (Surround right), ***SBR*** (Surround back right), ***SBL*** (Surround back left) (***SB*** when only one surround back speaker is connected), ***LS*** (Surround left):
Adjustment range; ***–20 dB*** to ***+10 dB***
Factory setting; ***0 dB***

SUBW (Subwoofer):
Adjustment range; ***---*** (off), ***MIN*** (minimum), ***1*** to ***29***, ***MAX*** (maximum)
Factory setting; ***20***

Note

- You cannot adjust the output levels of speakers other than the subwoofer in the "***PARTY***" mode (pages 28 and 29).
- You cannot adjust speakers not connected (pages 9, 10, 24 and 25) and others set as absent in "Setting speakers and their sizes" (page 35).

Adjusting the effect level

Press EFFECT, and press ◄ – / ► + for adjustment.

Adjustment range: ***EFFECT 1*** (minimum) to ***EFFECT 10*** (maximum)
Factory setting: ***EFFECT 5***

Note

You cannot adjust the effect level in the "***PARTY***" mode (pages 28 and 29).

Note

These settings remain effective after the unit goes off.

Adjusting speaker volumes

Adjust speaker output to balance front speaker sounds with those from each of the other speakers in the seating area.
Make adjustment after detecting speakers automatically (page 10).

Preparation

Press [SPEAKERS A] on the unit to switch "A" on.
(Press [SPEAKERS A] or [SPEAKERS B] to switch "A B" on when bi-wire speakers are connected.)

Note

If you select "SPEAKERS B" only, the test signal will not be output.

How speakers are displayed

- ***L*** : Front left
- ***C*** : Center
- ***R*** : Front right
- ***RS*** : Surround right
- ***LS*** : Surround left
- ***SBR*** : Surround back right
- ***SBL*** : Surround back left
- ***SB*** : Surround back (If you connect one surround back speaker)
- ***SW*** (***SUBW***) : Subwoofer

1 Press –AUTO TEST

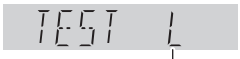
- A test signal is output from one speaker at a time for two seconds in the following order.

L → ***C*** → ***R*** → ***RS*** → ***SBR*** → ***SBL*** → ***LS*** → ***SW***

L → ***C*** → ***R*** → ***RS*** → ***SB*** → ***LS*** → ***SW***

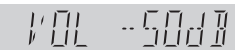
(When you connect one surround back speaker)

- Speakers not connected (pages 9, 10, 24 and 25) or set as unconnected in "Setting speakers and their sizes" (page 35) do not output test signals.



Speaker

2 Press + VOLUME – **to adjust the volumes of front speakers to the normal listening level.**



Volume range:
– – dB (minimum),
–79dB to ***0dB*** (maximum)

3 Press LEVEL **to select a speaker for adjustment.**

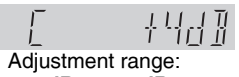
- Speakers switch in the following order each time you press the button.

C → ***RS*** → ***SBR*** → ***SBL*** → ***LS*** → ***SUBW***

C → ***RS*** → ***SB*** → ***LS*** → ***SUBW***

(When you connect one surround back speaker)

Speaker



Adjustment range:
–20dB to ***+10dB***
Factory setting: ***0dB***
SUBW only:
MIN (minimum) ↔ ***1*** to ***29*** ↔ ***MAX*** (maximum)
Factory setting: ***20***

4 Press ◀ – ▶ + **to adjust the volume of the selected speaker.**

Repeat steps 3 and 4 to adjust the level of each speaker.

- Only the adjusted speaker produces the test signal in steps **3** and **4**.
- Connected speakers start producing the test signal again in the above order 2 seconds after both steps.
- Press [TEST, –AUTO] to stop the test signal.

Adjusting the subwoofer level

You can adjust the output level while playing sources. You can adjust the level according to your preference by thickening or thinning the ultra bass, for example.

Press SUBWOOFER **to select a level.**

Adjustment range:
--- (off), ***MIN*** (minimum), ***5***, ***10***, ***15***, ***20***, ***25***, ***MAX*** (maximum)
Factory setting: ***SUBW 20***

- Select "**---** " to stop output.

Note

- Sound can be distorted if you raise the volume while the subwoofer level is high. Reduce the subwoofer level if this occurs.
- Adjust the output level by taking steps described in "Adjusting speaker volumes" (above) when you wish to make detailed settings.

Silencing speakers temporarily

Press MUTING

- "***MUTING IS ON***" scrolls across the display while the volume is muted.
- Press the button again to cancel the operation.

Note

Muting is canceled when you turn the unit off or adjust the volume.

Dimming the display light (Dimmer)

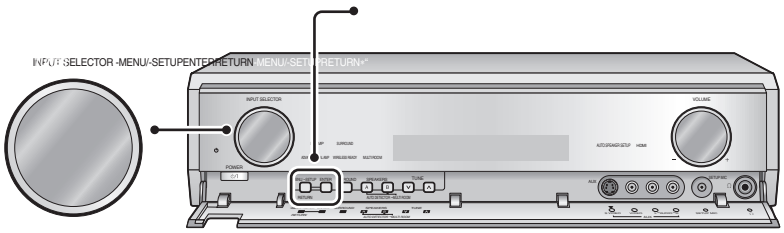
Press DIMMER

- Press the button to dim the display. The light above [INPUT SELECTOR] and [VOLUME] goes off.
- Press the button again to cancel the operation.

Note

Refer to page 33 for adjusting the brightness on the unit.

Sound effects/Convenient functions



How to set up

1 To enter the MENU

Press

2 To select the item you wish to change

Turn to select an item.

Press for confirming the choice.

3 To change the setting

Turn to change the setting.

Press for confirming the choice.

4 To finish the setting

Press several times to select "*EXIT*".

Press for confirming the choice.

- The display returns to the original one.
- You can also select "***EXIT***" by turning [INPUT SELECTOR].

To return to the previous display/To cancel

Press

Adjusting the bass

- **You can adjust the bass through this operation.**

1 Select and confirm the choice.

2 Make adjustment and confirm the choice.

Adjustment range: ***–10*** dB to ***+10*** dB
Factory setting: ***0*** dB

Adjusting the treble

- **You can adjust the treble through this operation.**

1 Select and confirm the choice.

2 Make adjustment and confirm the choice.

Adjustment range: ***–10*** dB to ***+10*** dB
Factory setting: ***0*** dB

Balancing front speaker volumes

- **You can adjust the balance of the front speakers.**

1 Select and confirm the choice.

2 Make adjustment and confirm the choice.

The bar shows the standard balance.

L : Front left
R : Front right

Note

You cannot adjust volume balance when you use SFC's "***PARTY***" mode (pages 28 and 29).

Changing the audio output (Dual program)

- **The unit allows you to switch dual audio signals in Dolby Digital and DTS formats.**

"***DUAL PRG***" appears on the display when the unit receives dual audio signals.

1 Select and confirm the choice.

2 Select audio and confirm the choice.

MAIN :
Main audio output
SAP :
Sub channel audio output
M+S :
Main and sub channel audio output
Factory setting: ***MAIN***

Adjusting the brightness of the display

- **Dim the display for better viewing in a darkened room.**

1 Select and confirm the choice.

2 Select a setting and confirm the choice.

- Select "***DIMMER OFF***" to cancel.
- The light above [INPUT SELECTOR] and [VOLUME] goes off when you make this adjustment.

Adjustment range:
DIMMER 1 (bright) to
DIMMER 3 (dim)
Factory setting: ***OFF***

Sleep timer

- **The sleep timer can turn the unit off after a set time.**

1 Select and confirm the choice.

2 Select the time and confirm the choice.

- When this is set, "**SLEEP**" appears on the display.
- **To check the setting:**
  After setting the time, you can check the remaining time using step **1**.
- **To change a setting:**
  Repeat the procedure from the beginning.

Times available for setting:
30, 60, 90, 120 (minutes)
Factory setting: ***OFF***

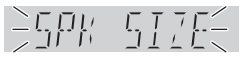
Note

Sleep timer is for this unit only.

Setting speakers and their sizes

- **You can set connected speakers and their sizes manually.**
- **Different ranges are played by different speakers. Size setting is necessary for reproducing sources, particularly their bass section, completely.**

1 Select and confirm the choice.



2 Select a speaker for setting and confirm the choice.

3 Change a setting and confirm the choice.

☞ **To go back to step 1**
Select and confirm the choice.

☞ **When you set the front speakers (LR) as "*LARGE*"**
- The subwoofer also makes audio output in the bass range when you perform stereo playback of analog and PCM sources.
- The subwoofer sends out only the LFE (low frequency effect channel) signal contained in 2-channel Dolby Digital or DTS sources when you play them in stereo.

SUBW :Subwoofer
LR : Front speakers
C : Center speaker
S : Surround speakers
SB : Surround back speakers

SUBW : ***NO*** ; unconnected ***YES*** ; connected

LR, ***C***, ***S*** :
NONE ;
For speakers you haven't connected (center or surround only).
SMALL ;
For speakers that cannot adequately reproduce the bass range. This setting is sufficient for most speakers if you are using a subwoofer.
LARGE ;
For speakers that can sufficiently reproduce the bass range down to 20 Hz.

SB :
NONE ;
For speakers you haven't connected.
1-SPK ;
If you connect one surround back speaker.
2-SPK ;
If you connect two surround back speakers.

Factory settings: ***LR***, ***C***, ***S*** ; ***SMALL***
SUBW ; ***YES***
SB ; ***2-SPK***

Note

- Set the lowpass filter frequency according to frequencies available for playback when speakers are set as "***SMALL***". The factory setting is 80 Hz. (below)
- The following are set automatically.
  When you set "***LR***" to "***SMALL***", "***SUBW***" is set to "***YES***".
  When you set "***SUBW***" to "***NO***", "***LR***" is set to "***LARGE***".
- "***SB***" does not appear when "***S***" is set to "***NONE***".
- The "***SB***" size becomes the "***S***" size because the unit does not offer "***SB***" size setting.
- When you change the number of connected speakers, settings made with the setup microphone are canceled. (pages 24 and 25)

Setting distances

- **By adjusting the distance from each speaker (except the subwoofer) to the seating area, the sound delay time is automatically adjusted so that sound reaches the listener at the same time.**

1 Select and confirm the choice.

2 Select a speaker for setting and confirm the choice.

3 Select a distance and confirm the choice.

L : Front left
R : Front right
RS : Surround right
SBL : Surround back left
SBR : Surround back right
C : Center
LS : Surround left

Adjustment range: ***1.0*** to ***45.0*** **ft** (feet)
This unit is adjusted at 0.5 feet intervals.

Factory settings: ***L***, ***R*** ; ***10.0*** **ft** (feet)
C ; ***10.0*** **ft** (feet)
LS, ***RS*** ; ***5.0*** **ft** (feet)
SBL, ***SBR*** ; ***5.0*** **ft** (feet)

Note

- Speakers whose polarity was automatically adjusted through the auto speaker setup using the setup microphone are displayed with "***–***" such as "***L 10.0 –***".
- When the speaker distance measured through the auto speaker setup (pages 24 and 25) exceeds 45 feet (15 meters), the distance is displayed as "***OVER***".

Setting the lowpass filter

- **If the speaker sizes (above) are set to "*SMALL*", make this setting.**
- **The unit cannot reproduce the entire bass range when speakers are set as "*SMALL*". You can arrange the unit to provide missing bass sounds through the subwoofer by setting the lowpass filter frequency according to frequencies available for playback.**

1 Select and confirm the choice.

2 Select the lowpass filter frequency and confirm the choice.

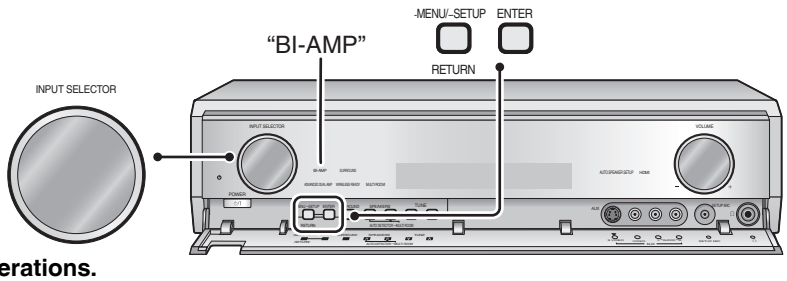
Lowpass filter frequency for sending the bass range to the subwoofer:
80, ***100***, ***120***, ***140***, ***160***, ***180***, ***200*** (Hz)

Factory setting: ***80*** (Hz)

Note

The setting made through these steps applies to all speakers set as "***SMALL***".

Settings



See page 34 for receiver operations.

Changing auto speaker settings

1) Among speaker settings made with the setup microphone, you can return polarity and frequency to factory settings. (The "AUTO SPEAKER SETUP" indicator goes off when you perform this operation.)
2) The unit judges polarity of certain properly connected speakers as opposite. When this happens, set the unit against automatic polarity adjustment and prevent polarity reversal.

1) To return speakers to factory settings

1 Select and confirm the choice.

-AUTO SETUP-

2 Select and confirm the choice.

-DEFAULT-

3 Select and confirm the choice.

-YES-

• To cancel, press "***NO***".

YES :
For returning to factory settings
NO :
For keeping auto settings

2) Setting the unit against automatic polarity adjustment

1 Select and confirm the choice.

-AUTO SETUP-

2 Select and confirm the choice.

-POLARITY-

3 Select and confirm the choice.

CHECK -NO-

CHECK YES :
Normal auto speaker setup
CHECK NO :
No automatic polarity adjustment

Making BI-AMP settings

• BI-AMP settings appear on the display and become selectable only when you set bi-wire speakers (page 20).
1) You can drive speakers with front, surround and surround back speaker amps instead of using BI-AMP (triple amp mode).
2) You can adjust HF (high frequency) and LF (low frequency) output balance of the bi-wired speakers.
3) You can reduce the delay time due to the difference in size of the HF and LF units.

1) Canceling BI-AMP (using the triple amp mode)

1 Select and confirm the choice.

-BI-AMP-

2 Select and confirm the choice.

-FUNCTION-

3 Select and confirm the choice.

-OFF-

• The "BI-AMP" indicator goes off when the unit enters the triple amp mode.

AUTO :
When using BI-AMP
OFF :
When not using BI-AMP (when using the triple amp mode)
Factory setting : ***AUTO***

2) Adjusting the balance

1 Select and confirm the choice.

-BI-AMP-

2 Select and confirm the choice.

0

3 Make adjustment and confirm the choice.

LF : Low frequency
HF : High frequency

3) Correcting the HF and LF difference

1 Select and confirm the choice.

2 Select and confirm the choice.

3 Make adjustment and confirm the choice.

Adjustment range:
0.0 to ***12.0*** **in** (inch)
You can select differences at 0.5 inch intervals.
Factory setting: ***0.0*** **in** (inch)

Setting ADVANCED DUAL AMP off

1 Select and confirm the choice.

2 Select and confirm the choice.

AUTO :
Advanced dual amp is on
OFF :
Advanced dual amp is off
Factory setting: ***AUTO***

See page 34 for receiver operations.

Changing the digital input settings

- Change these settings to suit the connections you have made to the digital input terminals.
- You can only allocate one piece of equipment per terminal.
  Example: "*OPT 1*" becomes the only digital terminal you can use for connecting the DVD player to the unit when you change the DVD setting to the terminal.

1 Select and confirm the choice.

2 Select the equipment connected to the digital input terminal and confirm the choice.

3 Change the digital input setting and confirm the choice.

Repeat steps 2 and 3 to change settings.

TV : TV
DVR : DVD recorder
DVD : DVD player
CD : CD player

Factory setting:
TV ; ***OPT1*** (OPTICAL1)
DVR ; ***OPT2*** (OPTICAL2)
DVD ; ***COAX1*** (COAXIAL1)
CD ; ***COAX2*** (COAXIAL2)

Setting input signals

- You can fix the signal type (digital, analog or PCM) supplied by such equipment as the DVD recorder and the DVD player or make the unit identify the input signal type.
- Select "*AUTO*" when it is not necessary to fix the signal.

1 Select and confirm the choice.

2 Select the equipment connected to the digital input terminal and confirm the choice.

3 Select the method for identifying input signals and confirm the choice.

Repeat steps 2 and 3 to change settings.

TV : TV
DVR : DVD recorder
DVD : DVD player
CD : CD player

AUTO :
Automatic identification of digital and analog signals (HDMI takes priority when the input signal is digital.)
ANALOG :
Fixes the input signal to analog.
DIG :
Fixes the input signal to digital.
PCMFIX :
Fixes the input signal to PCM.

Factory setting:
TV, ***DVR*** ,***DVD***, ***CD*** ; ***AUTO***

PCM FIX mode

- In rare cases, the unit may have trouble recognizing the digital signals on discs.
- Use this mode when, for example, the beginning of a playing CD track is cut off.
- You do not need to set the mode when playback is normal.
- When PCM FIX mode is on, the unit cannot process other signals. Cancel the mode when noise occurs.

Note

- "**DIGITAL INPUT**" stays on the display when you fix the input signal as digital.
- "**PCM**" appears on the display when you set the input signal as "***PCMFIX***".
- "***PCM FIX***" flashes on the display when the unit is in the PCM FIX mode and a non-PCM source is input through digital (OPTICAL or COAXIAL) connections.

Reducing standby power consumption (power saving standby mode)

1 Select and confirm the choice.

2 Select and confirm the choice.

3 Select and confirm the choice.

OFF :
When you wish to reduce standby power consumption
ON :
When you activate the standby through function (standby power consumption becomes 0.7 W in this setting)

Factory setting: ***ON***

Note

When you select "***OFF***", the following becomes applicable.

- Standby power consumption becomes 0.3 W.
- Standby through with HDMI connections (page 7) does not work.
- Ez Sync HDAVI Control (page 13) is canceled (when the unit is off).

Setting the unit against Ez Sync HDAVI Control

- You can set the unit against EZ Sync HDAVI Control when compatible TV (VIERA) and DVD recorder (DIGA) are connected.

1 Select and confirm the choice.

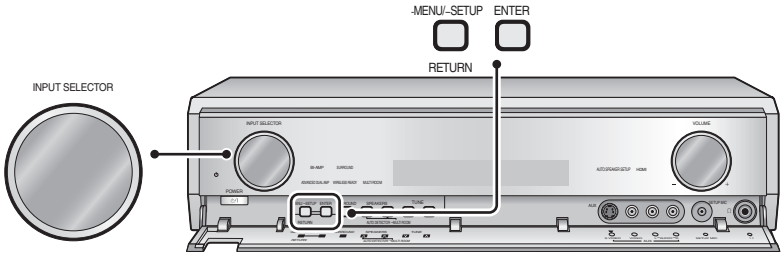
2 Select and confirm the choice.

3 Select and confirm the choice.

OFF :
When not using EZ Sync HDAVI Control
ON :
When using EZ Sync HDAVI Control

Factory setting: ***ON***

Settings



See page 34 for receiver operations.

Listening clearly at low volume

- This function compresses the dynamic range of Dolby Digital contents.
- Without affecting the sound field, the function makes spoken lines easier to catch at low volume by reducing the difference between the maximum and minimum sounds created by audio signals. This convenient function allows you to enjoy commercial sources late at night when you cannot produce big sounds.

1 Select and confirm the choice.

2 Select a setting and confirm the choice.

Note

This function does not work when disc data does not support it.

OFF :
The software is played with the original dynamic range
STANDARD :
The level recommended by the producer of the software for household viewing
MAX :
The maximum allowable compression (recommended for night viewing)

Factory setting: ***OFF***

Switching the attenuator

- Switch the attenuator on when sounds become distorted while playing an analog input source and the sign "*OVERFLOW*" appears on the display.

1 Select and confirm the choice.

2 Select and confirm the choice.

- To cancel, select "***OFF***".

OFF :
For switching the attenuator off
ON :
For switching the attenuator on

Factory setting: ***OFF***

Adjusting audio timing to video timing

- Adjust audio timing to video timing by delaying audio output by 40 msec or so when pictures arrive after sounds.

1 Select and confirm the choice.

2 Select and confirm the choice.

OFF : Normal setting
ON : Setting for delaying audio output

Factory setting: ***OFF***

RESET (factory settings)

- Re-enter settings to your liking when necessary.

1 Select and confirm the choice.

2 Select and confirm the choice.

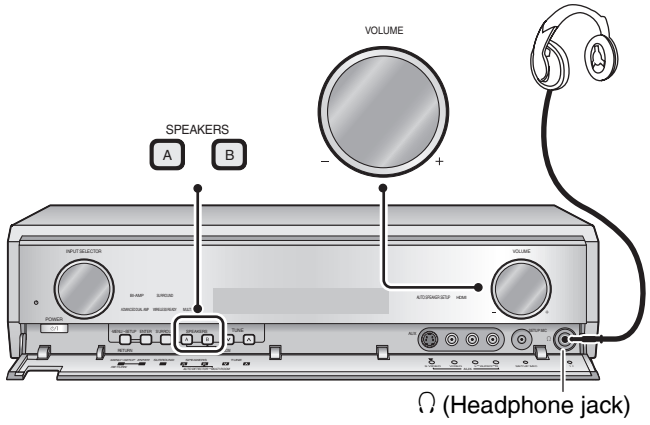
- To cancel, select "***NO***".

YES : Choice for resetting
NO : Choice against resetting

Note

When you select "***YES***", the input source becomes TUNER (preset channel 1). Preset radio stations will not be erased.

Using headphones



(Headphone jack)

1 Press [SPEAKERS A] and [SPEAKERS B] to switch all speakers off.

SPEAKERS

2 Lower the volume by turning [VOLUME, –, +] and connect headphones to the unit.

Plug type: ø 6.3 mm (1/4") stereo standard plug

3 Adjust the volume by turning [VOLUME, –, +].

Note

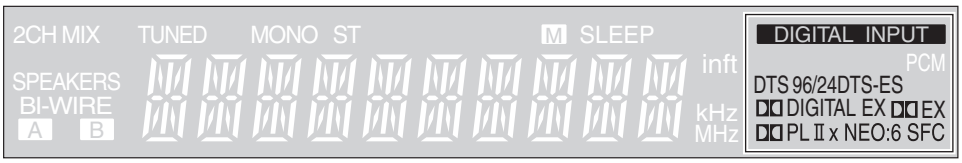
- Avoid listening for prolonged periods of time to prevent hearing damage.
- Playback channels become two when you switch all speakers off. The 2-channel mix (2CH MIX) function activates automatically when you play a surround source. (Excluding DVD-Audio sources that do not allow down-mixing.)
- The DVD ANALOG 6CH (page 27) goes off and front two channels make audio output when you play sources through analog 6-channel connections (page 18).

Audio signals and amp mechanism

Digital signals this unit can play

Dolby Digital (including Dolby Digital Surround EX)	This is the digital surround system developed by Dolby Laboratories. Dolby Digital Surround EX adds a surround back channel to the traditional 5.1-channel format of Dolby Digital. This creates a sound with greater presence.	**DVD etc.**
DTS (including DTS-ES and DTS 96/24)	This is the digital surround system developed by DTS (Digital Theater Systems, Inc.). DTS-ES adds a surround back channel to the traditional 5.1-channel format of DTS. This creates a sound with greater presence. DTS 96/24 provides 96 kHz sound at up to 24 bits. The 96 kHz/24 bit high frequency sounds are played through multiple channels.	**DVD etc.**
PCM	This unit's DIGITAL IN COAXIAL1 terminal can play up to 192 kHz and the other DIGITAL IN terminals can play up to 96 kHz. Frequencies appear on the display when the unit receives input signals transmitted at the frequencies of 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz.	**CD, DVD-Audio etc.**

Audio signal displays



DIGITAL: Dolby Digital decoder is being used.

DIGITAL EX: Dolby Digital Surround EX decoder (Dolby Pro Logic IIx decoder) is being used when the input signal is Dolby Digital 5.1-channel or Dolby Digital Surround EX. (Displayed only when you connect one surround back speaker.)

EX: Dolby Digital Surround EX decoder (Dolby Pro Logic IIx decoder) is being used when the input signal is DTS 5.1-channel. (Displayed only when you connect one surround back speaker.)

PL IIx: Dolby Pro Logic IIx decoder is being used.

PL II: The display informs Dolby Pro Logic IIx (the Dolby Pro Logic II decoder) is used on 2-channel stereo sources when surround back speakers are absent.

DTS: DTS decoder is being used.

DTS 96/24: DTS 96/24 decoder is being used.

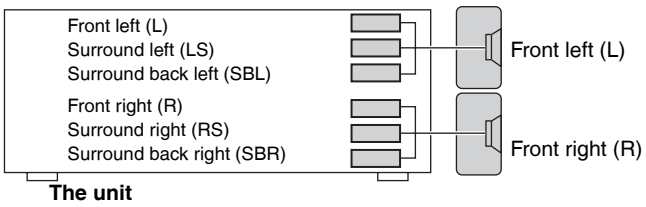
DTS-ES: DTS-ES discrete or matrix decoder is being used.

NEO:6: DTS NEO:6 matrix decoder is being used.

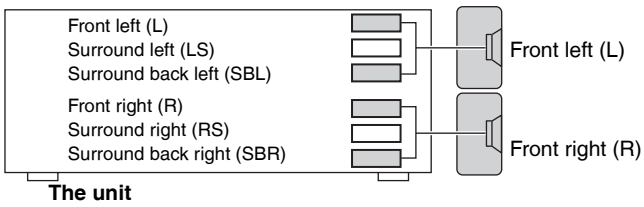
SFC: SFC matrix function is being used.

ADVANCED DUAL AMP (page 27)

Stereo playback

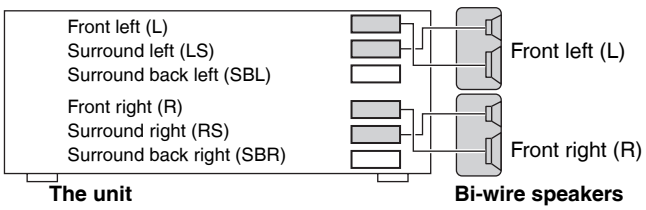


5.1-channel surround playback

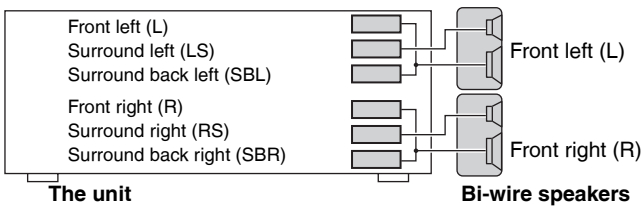


BI-AMP (page 27)

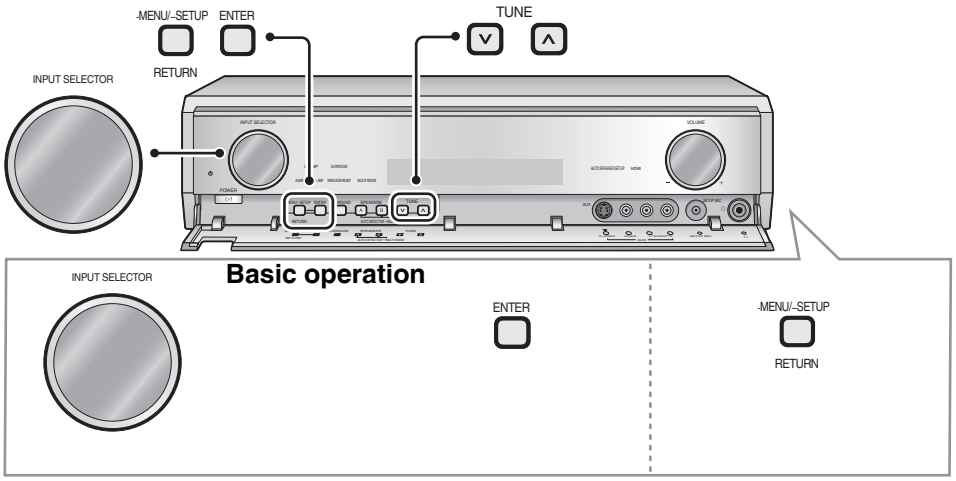
BI-AMP



BI-AMP and ADVANCED DUAL AMP



The radio



Manual tuning

(Using the remote control)

1 **To use the radio tuner**

Press

2 **To select "*TUNER FM*" or "*TUNER AM*"**

Press and hold for 2 seconds.

3 **To enter the station frequency (direct tuning)**

Press

e.g. FM 107.9 MHz, Press [1] → [0] → [7] → [9]
Tuning intervals: FM - 0.1 MHz,
AM - 10 kHz

- If you do not press a button while the cursor is flashing, the display returns to the frequency being received.
- If the frequency has not been input correctly, "***ERROR***" will be displayed.

(Using the unit)

1 **To select "*TUNER FM*" or "*TUNER AM*"**

Turn

2 **To tune to the station**

Press

Tuning intervals: FM - 0.2 MHz,
AM - 10 kHz

Automatic tuning
Hold down [TUNE ∨ or ∧] until the frequency begins to scroll. Tuning stops when a station is found. (Tuning may stop if there is interference.)

- "**TUNED**" is displayed when a station is tuned.
- "**ST**" is displayed when a stereo FM broadcast is tuned.

Improving reception
DVD recorders and DVD players can interfere with radio reception. Turn the DVD recorder and the DVD player off or move them further away from the AM loop antenna if this occurs.

Preset tuning

Presetting stations

Auto presetting

1 Tune to the frequency where you want to begin presetting. (page 40)

Set the channel reception to FM 87.9 MHz or AM 530 kHz if you want automatic presetting to start from the lowest frequency.

Preset channels that are automatically assigned by this unit are:
FM: 1 to 30
AM: 21 to 30
Preset the FM stations first. If the AM stations are preset before the FM stations, they will be erased when the FM stations are preset.

2 Press -MENU/–SETUP / RETURN to enter the MENU.

3 Select "*TUNER*" and confirm the setting.

4 Select "*AUTO MEMO*" and confirm the setting.

5 Select "*START*" and press [ENTER].

Select "***CANCEL***" to cancel.

- During automatic presetting, the memory indicator (M) flashes and the frequency scrolls. The memory indicator and channel number are displayed for a second when a station is preset.
- The last station to be preset is displayed when presetting finishes.
- Frequencies may not be preset correctly when broadcast waves are too strong or too weak. In such cases, carry out presetting manually.

Manual presetting

1 Tune to the station you want to preset. (page 40)

2 Press -MENU/–SETUP / RETURN to enter the MENU.

3 Select "*TUNER*" and confirm the setting.

4 Select "*MEMORY*" and confirm the setting.

5 Select a channel number and press [ENTER].

"***STORED***" is displayed.

- To continue presetting, press [TUNE ∨ or ∧] to tune another station from step **1**.

6 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

- FM stations can also be preset in the MONO mode (below).

Listening to preset stations

(Using the remote control)

Select the channel.

Press CH ∧ / ∨

- Hold down the button to change channels faster.

Press the numbered buttons to select the channel.

Press 1 2 3 / 4 5 6 / 7 8 9 / 0 ≧10 (ENTER)

To select a two digit number
e.g. 21: [≧10, ENTER] → [2] → [1]

(Using the unit)

1 Press -MENU/–SETUP / RETURN to enter the MENU.

2 Select "*TUNER*" and confirm the setting.

3 Select "*TUNE MODE*" and confirm the setting.

4 Select "*PRESET*" and confirm the setting.

5 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

6 Press TUNE ∨ ∧ to select the channel.

- Hold down the button to change channels faster.

- Select "***MANUAL***" in step **4** when you wish to perform manual tuning (page 40).

Reducing excessive noise (on the unit)

Select if noise is excessive during radio reception.

Preparation **Press [-MENU/–SETUP, RETURN] to enter the MENU.**

During FM stereo reception

You can improve FM reception by switching reception to monaural.

1 Select "*TUNER*" and confirm the setting.

2 Select "*FM MODE*" and confirm the setting.

3 Select "*MONO*" and confirm the setting.

- When this is set, "**MONO**" appears on the display.
- Select "***AUTO***" to cancel.

4 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

During AM reception

When there is a lot of noise interference with an AM broadcast, try switching to this mode.

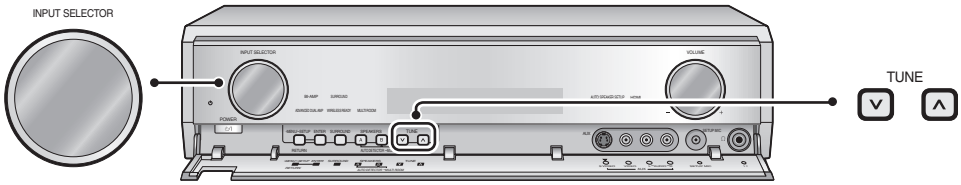
1 Select "*TUNER*" and confirm the setting.

2 Select "*BEAT PROOF*" and confirm the setting.

3 Select "*MODE 1*" or "*MODE 2*" and confirm the setting.

4 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

XM® Satellite Radio



Introducing XM Satellite Radio

XM Satellite Radio offers an extraordinary variety of commercial-free music, plus the best in sports, news, talk and entertainment. XM is broadcast in superior digital audio from coast to coast. From rock to reggae, from classical to hip hop, XM has something for every music fan. XM's dedication to playing the richest selection of music is matched by its passion for live sporting events, talk radio, up-to-the-minute news, stand-up comedy, children's programming, and much more.
For U.S. customers, information about XM Satellite Radio is available online at www.xmradio.com.
For Canadian customers, information about XM Canada is online at www.xmradio.ca.

How to Subscribe

XM monthly service subscription sold separately. XM Connect & Play antenna, or XM Mini-Tuner and Home Dock (includes home antenna) required to receive XM service (sold separately). Other fees and taxes, including a one-time activation fee may apply. Subscription fee is consumer only. All fees and programming subject to change. Channels with frequent explicit language are indicated with an XL. Channel blocking is available for XM radio receivers by calling 1-800-XMRADIO (U.S. residents) and 1-877-GET-XMSR (Canadian residents).
For a full listing of the XM commercial-free channels and advertising-supported channels, visit lineup.xmradio.com (U.S. residents) or xmradio.ca (Canadian residents).
Subscriptions subject to Customer Agreement available at xmradio.com (U.S. residents) and xmradio.ca (Canadian residents). Only available in the 48 contiguous United States and Canada. ©2006 XM Satellite Radio Inc. All rights reserved. All other trademarks are the property of their respective owners.

Activate your XM Satellite Radio service in the U.S. online at http://activate.xmradio.com or call 1-800-XM-RADIO (1-800-967-2346). You will need a major credit card. XM will send a signal from the satellites to activate the full channel lineup. Activation normally takes 10 to 15 minutes, but during peak busy periods you may need to keep your XM Ready home audio system on for up to an hour. When you can access the full channel lineup on your XM Ready home audio system you are done. For more information or to subscribe in Canada, visit XM on the Web at www.xmradio.ca or call XM's Listener Care at 1-877-GET-XMSR (1-877-438-9677)

You should have your Radio ID ready; the Radio ID can be found by selecting channel 0 on the radio. Please see below.

Displaying the XM Satellite Radio ID

You can confirm your XM Satellite Radio ID necessary for activating XM Satellite Radio as follows.

1 Connect the XM Connect & Play antenna, or XM Mini-Tuner and Home Dock. (page 23)

2 Press TUNER –BAND to use the radio tuner.

3 Press and hold TUNER –BAND for 2 seconds to select "*TUNER XM*".

FM → AM → XM

4 Press DIRECT TUNING DISC

5 Press 0 3 times to select XM channel 0.

6 Write down your XM Satellite Radio ID below.

ID: ____ ____ ____ ____ ____ ____ ____ ____

- To avoid ambiguity, the letters I, O, S, and F are not used in the ID.

Positioning the antenna for optimal reception

The unit has a signal strength indicator that allows you to optimize the XM signal reception.

- Place the antenna near a south-facing window with an unobstructed view of the sky for the best satellite signal reception.
- To prevent interference with wireless equipment, place the antenna away from this unit, Panasonic wireless sound system SH-FX80, Panasonic wireless system SH-FX50/SH-FX60, and other equipment that emits radio waves (such as radio equipment and microwave ovens).

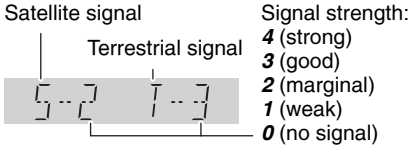
1 Press [TUNER, –BAND] to use the radio tuner.

2 Press and hold [TUNER, –BAND] for about 2 seconds to select "*TUNER XM*".

3 Press and hold (S) XM DISPLAY for 2 seconds.

Satellite and terrestrial signal levels (strength) are displayed.

4 Position the antenna for the best possible signal reception.



When you move the antenna for the best reception, the signal strength on the display changes.

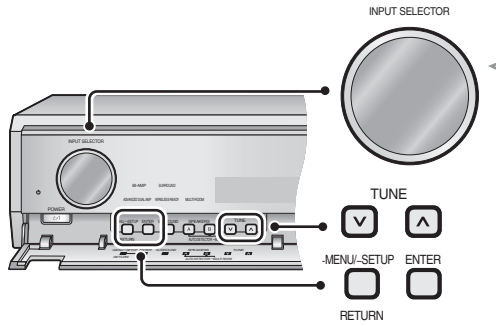
- Position the antenna in a place where either satellite signal reception or terrestrial signal reception is strong.
- If the satellite signal is weak or not available, you can optimize the terrestrial signal reception (where available).

5 Press and hold (S) XM DISPLAY for about 2 seconds to return to the previous display.

- You can also return the display to the original by performing other operations.

- Refer also to the operating instructions of your XM Connect & Play antenna, or XM Mini-Tuner and Home Dock.

XM® Satellite Radio

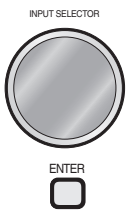


Basic operation

Turn to select.

Press to confirm your choice.

To return to the previous display/To cancel



Preset tuning

Presetting your favorite XM channels (using the unit)

Channel presets allow you to quickly and conveniently select your favorite XM channels. Up to 15 XM channels can be stored as channel presets.

1 Tune to the channel you want to preset. (page 43)
- You cannot preset XM channel 0. Select other channels.

2 Press [-MENU/–SETUP, RETURN] to enter the MENU.

3 Select "*TUNER*" and confirm the setting.

4 Select "*MEMORY*" and confirm the setting.

5 Select a preset channel (XM CH) and press [ENTER].
- "***STORED***" is displayed.
- To return to step **1** (and continue presetting), press [TUNE ∨ or ∧].

e.g.

6 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

- Preset channels (XM CH) 1 to 15 all contain XM channel 1 in the factory setting.

Selecting the channel presets

(Using the remote control)

To search a channel up and down

Press [∧ CH ∨]

- Hold down the button to change channels faster.

To select preset channels (XM CH) directly

Press [1] [2] [3] / [4] [5] [6] / [7] [8] [9] / [0] [≧10] (ENTER)

To select a two digit number
e.g. 15: [≧ 10, ENTER] → [1] → [5]

(Using the unit)

1 Press [-MENU/–SETUP, RETURN] to enter the MENU.

2 Select "*TUNER*" and confirm the setting.

3 Select "*TUNE MODE*" and confirm the setting.

4 Select "*PRESET*" and confirm the setting.

5 Press [-MENU/–SETUP, RETURN] twice to select "*EXIT*" and press [ENTER].

6 Press TUNE [∨] [∧] to select a preset channel.
- Hold down the button to change channels faster.

- Select "***MANUAL***" in step **4** when you wish to perform manual tuning (page 43).

XM advisory messages

Message	Status and remedy
ANTENNA (flashing)	• The XM Connect & Play antenna, or XM Mini-Tuner and Home Dock is not properly connected. Check the connection and make sure the antenna cable is not damaged.
UPDATING (flashing)	• The XM Connect & Play antenna, or XM Mini-Tuner and Home Dock is being updated with the latest encryption code. Wait a few seconds for the update to complete. • You may have selected an XM channel that has been blocked, or is no longer available with your subscription package. If you want to inquire about receiving the channel, call XM's Listener Care at 1-800-XMRADIO (1-800-967-2346) in the U.S.A. In Canada, call XM's Listener Care at 1-877-GET-XMSR (1-877-438-9677).
NO SIGNL (flashing)	• The XM signal is too weak. Reorient the XM Connect & Play antenna, or XM Mini-Tuner and Home Dock for better reception. • Make sure the antenna is properly connected.
LOADING (flashing)	• The XM Connect & Play antenna, or XM Mini-Tuner and Home Dock is receiving and decoding the broadcast information. Wait a few seconds for loading to complete.
OFF AIR (flashing)	• The selected XM channel is not broadcast now. Select a different channel.
XM ---	• The selected XM channel is not available. Select a different channel.
---	• Supplemental text information, such as the song title or artist name is not available for that particular broadcast. You can change the type of XM channel information that is displayed by pressing [S, XM DISPLAY].
(You can receive only promotional XM channels)	• Your XM Connect & Play antenna, or XM Mini-Tuner and Home Dock has not been activated, or your subscription has expired. • To activate your XM Connect & Play antenna, or XM Mini-Tuner and Home Dock, or to renew your subscription, visit XM on the Web at www.xmradio.com or call XM's Listener Care at 1-800-XMRADIO (1-800-967-2346) in the U.S.A. In Canada, visit www.xmradio.ca or call XM's Listener Care at 1-877-GET-XMSR (1-877-438-9677). You should have your Radio ID ready.
(Sometimes "***TUNER XM***" stays on the display for a long time)	• When this happens, the unit is taking time to receive broadcast. Please wait for a while.

Remote controlling a TV or DVD recorder etc.

Besides this unit, you can operate a Panasonic TV, DVD recorder, DVD player, VCR or CD player (excluding certain models) using the supplied remote control. See respective equipment's operating instructions for detailed operations.
You may need to enter a code to operate some equipment (page 47).

Aim the remote control at the equipment you wish to operate.

Remote controlling a TV

To switch the unit's input to "*TV/STB*"/ To switch the remote control to the TV operation mode	TV **Do not forget to press this before operating a TV.**
To turn the TV on or off	AV SYSTEM
To switch the TV's input mode (TV/video)	TV/VIDEO
To adjust the TV volume	TV VOL
To select a channel (When you make a selection in rising or falling order)	CH
To select a channel (When you select a channel directly)	1 2 3 4 5 6 7 8 9 0 ≥10 ENTER

Remote controlling a DVD recorder

To switch the unit's input to "*DVR*"/ To switch the remote control to the DVD recorder operation mode	RECORDER DVD **Do not forget to press this before operating a DVD recorder.**
To turn the DVD recorder on or off	AV SYSTEM
To start playback	PLAY
To skip a track or chapter	SKIP
To search through the disc	SLOW/SEARCH
To play in slow-motion	PAUSE, SLOW/SEARCH
To show the direct navigator (or the top menu)	TOP MENU, DIRECT NAVIGATOR
To show a sub menu	SUB MENU (S)
To show the FUNCTIONS window (while stopped)	FUNCTIONS
To return to the previous screen	RETURN
To select an item Press to select after pressing [DIRECT NAVIGATOR, TOP MENU], [S, SUB MENU, XM DISPLAY], or [FUNCTIONS].	

To confirm the selected item	ENTER
To select a track or chapter directly • Some of the models require you to press [ENTER] to confirm after pressing number buttons.	1 2 3 4 5 6 7 8 9 0 ≥10 ENTER
To pause	PAUSE
To move forward or backward frame by frame	PAUSE
To skip a minute forward	CM SKIP
To switch DVD recorder drives (HDD, DVD drive, and SD drive etc.)	DRIVE SELECT
To select a channel (When you make a selection in rising or falling order)	CH
To select a channel (When you select a channel directly)	1 2 3 4 5 6 7 8 9 0 ≥10 ENTER
To stop playback	STOP

When operating a Panasonic DVD recorder using the supplied remote control

Change the control setting on the supplied remote control to match the DVD recorder's remote control mode.

Preparation Confirm the DVD recorder's remote control mode in its operating instructions.

1 Press [DVD RECORDER].

2 Press and hold [ENTER] together with [1], [2], or [3] for 2 seconds or longer.

- [Mode 1], [Mode 2], or [Mode 3] is set on the remote control according to the pressed button.
- The factory setting is [Mode 1].

When DVD recorder drives do not switch

The condition may mean the DVD recorder does not recognize the signal this unit's remote control transmits. Switch the drives again after changing the signal in the following procedure.

1 Press [DVD RECORDER].

2 Press and hold [ENTER] together with [8] for 2 seconds or longer.

- To return: In step **2** above, press and hold [ENTER] together with [9] for 2 seconds or longer.

Note

When you operate a DVD recorder with built-in VCR, press [DRIVE SELECT] to select a choice other than VCR.

Remote controlling a TV or DVD recorder etc.

Aim the remote control at the equipment you wish to operate.

Remote controlling a VCR

To switch the unit's input to "*VCR*"/ To switch the remote control to the VCR operation mode	VCR **Do not forget to press this before operating a VCR.**
To turn the VCR on or off	AV SYSTEM
To start playback	PLAY
To fast forward/rewind a tape	SLOW/SEARCH
To pause	PAUSE
To select a channel (When you make a selection in rising or falling order)	CH
To select a channel (When you select a channel directly)	1 2 3 / 4 5 6 / 7 8 9 / 0 ≧10 ENTER
To stop playback	STOP

Note

When you operate a DVD recorder with built-in VCR, press [DRIVE SELECT] to select VCR.

Remote controlling a DVD player

To switch the unit's input to "*BD/DVD*"/ To switch the remote control to the DVD player operation mode	PLAYER BD/DVD ANALOG 6CH **Do not forget to press this before operating a DVD player.**
To turn the DVD player on or off	AV SYSTEM
To start playback	PLAY
To skip a track or chapter	SKIP
To search through the disc	SLOW/SEARCH
To play in slow-motion	PAUSE → SLOW/SEARCH
To show the direct navigator (or the top menu)	TOP MENU / DIRECT NAVIGATOR
To show a sub menu	SUB MENU (S)
To show the FUNCTIONS window (while stopped)	FUNCTIONS
To return to the previous screen	RETURN
To select an item Press to select after pressing [DIRECT NAVIGATOR, TOP MENU], [S, SUB MENU, XM DISPLAY], or [FUNCTIONS].	▲ ◀ ▶ ▼

To confirm the selected item	ENTER
To specify a disc (5-disc changer only)	DIRECT TUNING → DISC → 1 2 3 / 4 5
To select a track or chapter directly • Some of the models require you to press [ENTER] to confirm after pressing number buttons.	1 2 3 / 4 5 6 / 7 8 9 / 0 ≧10 ENTER
To pause	PAUSE
To move forward or backward frame by frame	PAUSE → ◀ ▶
To stop playback	STOP

Note

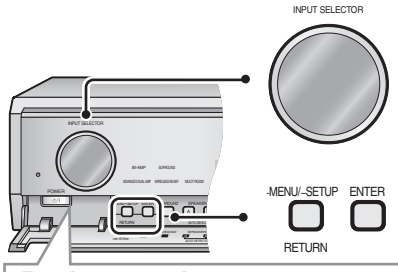
[FUNCTIONS] activates display functions on some of the Panasonic DVD players.

Remote controlling a CD player

To switch the unit's input to "*CD*"/ To switch the remote control to the CD player operation mode	CD **Do not forget to press this before operating a CD player.**
To turn the CD player on or off	AV SYSTEM ⏻
To start playback	PLAY ▶
To skip a track	⏮ ⏭ SKIP
To search through the disc	◀◀ ▶▶ SLOW/SEARCH
To pause	PAUSE ⏸
To specify a disc (3-or 5-disc changer)	DIRECT TUNING DISC ▼ 1 2 3 4 5
To start play from a specified disc [MEGA CD changer] (holds more than 50 discs)	DIRECT TUNING DISC ▼ 1 2 3 4 5 6 7 8 9 0 ▼ PLAY ▶
To select a track directly	1 2 3 4 5 6 7 8 9 0 ≧10 ENTER
To stop playback	STOP ■

Using two or more Panasonic equipment (a mini component system, an AV amp etc.)

Two or more Panasonic audio equipment may start functioning when you operate the unit using the supplied remote control. Set the unit's remote control mode to "***REMOTE 2***" in such cases.
Do the following to set the same number (2) as the remote control code.



Basic operation

Turn to select.

Press to confirm your choice.

To return to the previous display/ To cancel

Operation on the unit

1 Press and hold [-MENU/ –SETUP, RETURN] for about 2 seconds to enter the SETUP.

2 Select and confirm the choice.

3 Select and confirm the choice.

4 Select and finish the setting.

Operation on the remote control

5 Press TUNER –BAND

6 Press ENTER **and** 2 **simultaneously and hold them in the position for about 2 seconds.**

☞ **When you return the remote control code to "*1*"**

- Operation on the unit: select "***1***" in step **3**.
- Operation on the remote control: in step **6**, press [ENTER] and [1] simultaneously and hold them in the position for about 2 seconds.

Entering a code to operate other equipment

This remote control can operate Panasonic audio-visual equipment that has remote control sensors. You may need to change the remote control code. It can also operate some other brands of TVs, VCRs, and DVD players. Check the table for the brand and enter the code as follows.

Changing the codes

TV: TV

VCR: VCR

DVD player: PLAYER BD/DVD –ANALOG 6CH

Press and hold the button corresponding to the equipment.

▼ 1 2 3 4 5 6 7 8 9 0

e.g. 0250, Press [0] → [2] → [5] → [0]
The remote control outputs the on/off signal.
If the code is correct, the equipment turns on or off.
If it doesn't, try entering another code.

- Note that this remote control cannot operate some equipment and that it may not be able to perform some operations.
- Re-enter the codes after you change the batteries.

Code table

	TV	VCR	DVD player
PANASONIC	0051/0250/ 1492	0227/1244	0490/0491
AIWA	–	–	0641
APEX	–	–	0856/1352
BOSE	–	–	2023
DENON	–	–	0634
FISHER	1096	0046/0047/ 0054/0066	–
FUNAI	–	0184	–
G.E.	0047/0051/ 0747	0760/0761/ 1613	–
GOLD STAR	1240	1237	–
HARMAN KARDON	–	–	0702
HITACHI	1145	0042/1613	0664
JVC	1053	0008/0067/ 0384/0486	0623
KENWOOD	–	–	0737/1579
KONKA	–	–	0711
KOSS	–	–	1608
MAGNAVOX	0056/0694/ 1308/1694	0035/0226/ 0563	–
MINTEK	–	–	1472
MITSUBISHI	0150	0043/0075/ 0196/1617	1521
NEC	–	0038/0050	–
NEXTBASE	–	–	0826
ONKYO	–	–	0627/1891
ORITRON	–	–	0651
PHILIPS	–	0563	0539
PIONEER	1487	–	0571
QUASAR	0051	–	–
RAITE	–	–	0665
RCA	0747/1047/ 1490/1491	0042/0051	0522
SAMPO	–	–	0698
SAMSUNG	–	–	0573
SANYO	–	0104	–
SHARP	0093/0165	0048/0062	1606
SHINTOM	–	0753	–
SILVANIA	–	–	0675
SMC	–	–	0811
SONY	0810	0033/0034/ 0586/0639/ 0640/1232	1033/1604/ 1607/1633
SYNPHONIC	0180	0000	–
TOSHIBA	1488	0057/0210	1459
VENTURER	–	–	1821
WAVE	–	–	0709
YAMAHA	–	–	0817
ZENITH	0016/0017	0039	0741/1605

Troubleshooting guide

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to “Customer Services Directory” on page 50 if you reside in the U.S.A., or refer to “Product information” on page 52 if you reside in Canada.

Common problems		Pages
No power.	• Ensure the AC power supply cord is connected.	9
No sound. **Sound is distorted.**	• Turn the volume up. • Check connections to speakers and other equipment. • Turn on the speakers. • Select the correct source. • Change DIG INPUT setting to suit the type of connection you have made. • Check that the digital signals can be decoded by this unit. • Turn the muting off. • Turn PCM FIX off. • Recording of some DVD-Audio may not be possible due to copyright protection.	12, 26 7 to 9, 14 to 23 12, 26, 27 12, 26 37 39 31 37 –
Sound stops. **“*OVERLOAD*” appears on the display for about a second, and the unit turns off.**	• Determine and correct the cause, then turn the unit on. Causes include: - Shorting (bare wires touching) of positive and negative speaker wires. - Using speakers with an impedance lower than that rated for this unit. - Straining of the speakers through excessive volume or power. - Using the unit in a hot environment without proper ventilation. Consult your dealer if the problem occurs again after switching the unit on.	 8 9, 20, 21 – –
Analog input becomes distorted and the message “*OVERFLOW*” appears on the display during playback.	• Switch the attenuator on.	38
“*F76*” appears on the display and the unit turns off.	• Turn the unit off, disconnect the AC power supply cord, and consult your dealer.	–
“*F70*” appears on the display.	• Turn the unit off and on. When the message still appears, disconnect the AC power supply cord and consult your dealer.	–
“*REMOTE 2*” or “*REMOTE 1*” appears on the display.	• Match the codes on the main unit and the remote control.	47
Display is dim.	• Cancel “***DIMMER***”.	31, 33
Clicking sound is heard during play.	• Depending on the input signal when playing DVD etc., the ADVANCED DUAL AMP function changes automatically. A clicking sound is heard when it changes. This does not mean a problem with the unit. You can also set the unit against automatic ADVANCED DUAL AMP operations.	– 36

Setup microphone		Pages
“*MEASURING ERROR*” appears on the display.	• A speaker is too far. Check speaker locations. • An error occurred from a cause that cannot be identified. Perform the auto speaker setup again.	24, 25 –
When speaker distances are set (page 35), “– ” appears on the display with the speaker name such as “*L 10.0 –* ”.	• It appears when polarity of a speaker is automatically adjusted. You can set speakers against automatic polarity adjustment.	 36
When speaker distances are set (page 35), “*OVER* ” appears on the display.	• It appears when the measured distance exceeds 45 feet (15 meters). Check the speaker location.	–

Surround effects		Pages
Sound is not heard from the center, surround or subwoofer speakers.	• Ensure the speaker settings for your speakers are correct. • Confirm Dolby Pro Logic IIx, NEO:6, or SFC settings, and select an adequate mode. • Press [SURROUND] on when you play 2-channel stereo sources.	10, 24, 25, 35 28 to 30 12, 26
Sound is not heard from the surround back speaker.	• Ensure the speaker settings for your speakers are correct. • Press [SURROUND] on.	10, 24, 25, 35 12, 26
Dolby Pro Logic IIx, NEO:6, and SFC are unavailable.	• Check if the center speaker, surround speakers, and surround back speakers are connected properly. • Press [SPEAKERS A] on. • You cannot use Dolby Pro Logic IIx , NEO:6 or SFC on sources containing PCM signals with the sampling frequency of 192 kHz. • Cancel DVD ANALOG 6CH playback. • You cannot use the effect when the input source contains dual audio signals in Dolby Digital or DTS formats.	9 12, 26 – 27 –
There is no DTS audio output. There is audio output, but the DTS decoder indicator is not lit.	• Set the DTS Digital Audio Output setting on the DVD player or DVD recorder to “Bitstream”.	–
Sound is distorted when using the Sound Field Control (SFC).	• Depending on the input source, sound may be distorted if you increase the SFC effect level. If this happens, decrease the SFC effect level.	30

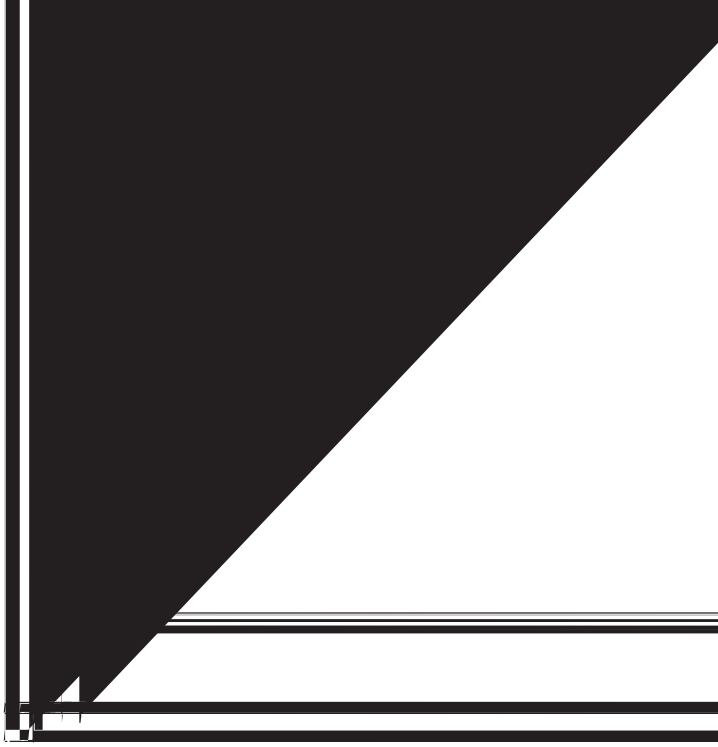
Radio		Pages
The radio cannot be tuned in or there is a lot of noise and interference.	• Connect the appropriate antenna. (You may need an outdoor antenna or one with more elements.) • Adjust the position of the FM or AM antenna. • Reduce the treble. • Turn off nearby televisions, video decks, DVD recorders, DVD players, and satellite receivers. • Separate the antenna from other cables, cords, and appliances.	23 23 33 – –
There is a lot of noise when listening to AM.	• Try changing the BEAT PROOF mode.	41

HDMI		Pages
When using an HDMI connection, the first few seconds of sound is cut off.	• Should you be playing a chapter on a DVD: - Change the audio output setting on the DVD player or DVD recorder from “Bitstream” to “PCM”. (6.1-channel sources will however be played as 5.1-channel.) - Select “***PCMFIX***” as instructed in “Setting input signals” when you play 2-channel stereo sources.	 – 37
“*U70-1-1*” appears on the display.	• The equipment connected by the HDMI cable is not compatible with the unit’s copyright protection technology.	–
“*U70-1-2*” appears on the display.	• The unit has received a signal for a picture format that is incompatible with the HDMI connection. Check the settings of the connected equipment.	–
“*U70- 3*” appears on the display.	• Should anything unusual happen using an HDMI connection: Consult your dealer if the sign remains on the display after these steps. - Turn the connected equipment off and on again. - Pull out the HDMI cable then reinsert it. - Reduce the number of equipment connected in series to the HDMI terminal if exceeding 2 units.	 – 7, 13 –
The unit does not work properly.	• The unit does not work properly when wrong cords are in HDMI input and output terminals. Turn the unit off, unplug the AC power supply cord, and make connections again.	7, 13
Ez Sync HDAVI Control does not function properly.	• Connect the unit to your TV (VIERA) using the HDMI cable, switch the TV on, unplug the unit’s AC power supply cord, and insert it into a household AC outlet again.	–

Remote control		Pages
The remote control doesn’t work.	• Replace the batteries if they are worn.	5
Other products respond to the remote control.	• Change this unit’s remote control code to “***REMOTE 2***”.	47

Help message

	Message	Cause/countermeasure
1	CANCEL MUTING FUNCTION	Muting is on. Press [MUTING] on the remote control to cancel the function (page 31).
2	MUSIC MODE ONLY	The selected mode is not "***MUSIC***". Change the mode to "***MUSIC***" (pages 28 and 29).
3	NO CENTER AND SU	Center and surround speakers are not connected, or they are set as absent. Connect the speakers (page 9) or change their setting to present (page 35).
4		Surround and surround back speakers are not connected, or they are set as absent. Connect the speakers (page 9) or change their setting to present (page 35).
5		Surround back speakers are not connected, or they are set as absent. Connect the speakers (page 9) or change their setting to present (page 35).



Specifications (IHF'78)

AMPLIFIER SECTION

Rated minimum sine wave RMS power output
20 Hz-20 kHz both channels driven
0.09 % total harmonic distortion 100 W per channel (6 Ω)
1 kHz continuous power output both channels driven
0.09 % total harmonic distortion 105 W per channel (6 Ω)
Total harmonic distortion
rated power at 20 Hz-20 kHz 0.09 % (6 Ω)
Power bandwidth
both channels driven, –3 dB 4 Hz to 88 kHz (6 Ω, 0.9 %)
Power output each channel driven
0.9 % total harmonic distortion at 1 kHz
Front (L/R) 100 W (6 Ω)
Center 100 W (6 Ω)
Surround (L/R) 100 W (6 Ω)
Surround Back (L/R) 100 W (6 Ω)
Load impedance
Front (L/R)
A or B 6 to 8 Ω
A and B 6 to 8 Ω
BI-WIRE 6 to 8 Ω
Center 6 to 8 Ω
Surround (L/R) 6 to 8 Ω
Surround Back (L/R) 6 to 8 Ω
Frequency response
CD, AUX, TV/STB, VCR, DVD RECORDER, BD/DVD PLAYER 4 Hz to 88 kHz, ±3 dB
DVD 6CH 4 Hz to 44 kHz, ±3 dB
Input sensitivity
CD, AUX, TV/STB, VCR, DVD RECORDER, BD/DVD/DVD 6CH 27 mV (200 mV, IHF '66)
Input impedance
CD, AUX, TV/STB, VCR, DVD RECORDER, BD/DVD/DVD 6CH 22 kΩ
S/N (IHF A)
CD, TV/STB, BD/DVD PLAYER, DVD RECORDER (Digital Input) 85 dB (103 dB, IHF '66)
Tone controls
BASS 50 Hz, +10 to –10 dB
TREBLE 20 kHz, +10 to –10 dB
Subwoofer frequency response (– 6 dB) 7 Hz to 200 Hz

Digital input	**(OPTICAL)**	2
	(COAXIAL)	2
HDMI (Version 1.2a)	**Input**	2
		1

FM TUNER SECTION

Frequency range 87.9 to 107.9 MHz
Sensitivity 11.2 dBf (2 µV, IHF '58)
50 dB quieting sensitivity
MONO 18.3 dBf (4.5 µV, IHF '58)
STEREO 38.3 dBf (45 µV, IHF '58)
Total harmonic distortion
MONO 0.2 %
STEREO 0.3 %
S/N
MONO 73 dB
STEREO 67 dB
Frequency response 20 Hz to 15 kHz, +1 dB, –2 dB
Alternate channel selectivity 65 dB
Capture ratio 1.5 dB
Image rejection at 98 MHz 40 dB
Spurious response rejection at 98 MHz 75 dB
AM suppression 50 dB
Stereo separation
1 kHz 40 dB
10 kHz 30 dB
Antenna terminal 75 Ω (unbalanced)

AM TUNER SECTION

Frequency range 530 to 1710 kHz
Sensitivity 20 µV, 330 µV/m
Selectivity 55 dB
IF rejection at 1000 kHz 50 dB

VIDEO SECTION

Output voltage at 1 V input (unbalanced) 1±0.1 Vp-p
Maximum input voltage 1.5 Vp-p
Input/output impedance 75 Ω

S-Video	**Input**	BD/DVD PLAYER, DVD RECORDER, TV/STB
	Output	TV MONITOR
Component Video	**Input**	DVD RECORDER, TV/STB
	Output	TV MONITOR

GENERAL

Power supply AC 120 V, 60 Hz
Power consumption 140 W
Dimensions (W x H x D) 430 mm x 107.5 mm x 390 mm (16-15/16" x 4-7/32" x 15-11/32")
Mass Approx. 5.3 kg (11.7 lb.)

DIN POWER

1 kHz, T. H. D. 1 % 2 x 100 W (6 Ω)

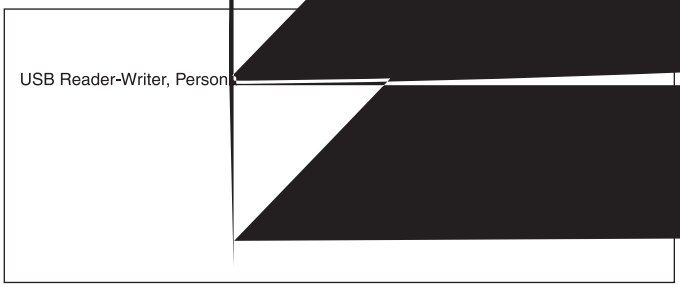
Power consumption in standby mode: **0.7 W**
Power consumption in HDMI off mode: **0.3 W**

Notes:
1. Specifications are subject to change without notice.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

Marking sign is located on bottom of the unit.

Reference

Limited W



Limited Warranty (Only for Canada)

PANASONIC PRODUCT – LIMITED WARRANTY

Panasonic Canada Inc. warrants this product to be free from defects in material and workmanship and agrees to remedy any such defect for a period as stated below from the date of original purchase.

Technics Audio Product	**One (1) year, parts and labour**
Panasonic Portable / Clock Radio (without Tape, CD, MD)	**One (1) year, parts and labour**
Panasonic Audio / SD Audio Product	**One (1) year, parts and labour**
Panasonic DVD Product	**One (1) year, parts and labour**
Panasonic Combination DVD Player / VCR	**One (1) year, parts and labour**
Panasonic Combination DVD Recorder / VCR	**One (1) year, parts and labour**
Accessories including rechargeable batteries	**Ninety (90) days**

LIMITATIONS AND EXCLUSIONS

This warranty does not apply to products purchased outside Canada or to any product which has been improperly installed, subjected to usage for which the product was not designed, misused or abused, damaged during shipping, or which has been altered or repaired in any way that affects the reliability or detracts from the performance, nor does it cover any product which is used commercially. Dry cell batteries are also excluded from coverage under this warranty.
This warranty is extended to the original end user purchaser only. A purchase receipt or other proof of date of original purchase is required before warranty service is performed.
THIS EXPRESS, LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL PANASONIC CANADA INC. BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.
In certain instances, some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or the exclusion of implied warranties, so the above limitations and exclusions may not be applicable.

WARRANTY SERVICE

FOR PRODUCT OPERATION ASSISTANCE, please contact:

Our Customer Care Centre:	Telephone #:	(905) 624-5505
	1-800 #:	1-800-561-5505
	Fax #:	(905) 238-2360
	Email link:	“Customer support” on www.panasonic.ca

FOR PRODUCT REPAIRS, please locate your nearest Authorized Servicentre at www.panasonic.ca :

Link : "Servicentres^{TM} locator" under "Customer support"

IF YOU SHIP THE PRODUCT TO A SERVICENTRE
Carefully pack and send prepaid, adequately insured and preferably in the original carton.
Include details of the defect claimed, and proof of date of original purchase.

Maintenance

If the surfaces are dirty

To clean this unit, wipe with a soft, dry cloth.
- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

Product Service

1. **Damage requiring service** — The unit should be serviced by qualified service personnel if:
   (a) The AC power supply cord or the plug has been damaged; or
   (b) Objects or liquids have gotten into the unit; or
   (c) The unit has been exposed to rain; or
   (d) The unit does not operate normally or exhibits a marked change in performance; or
   (e) The unit has been dropped or the cabinet damaged.

2. **Servicing** — Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.

3. **Replacement parts** — When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.

4. **Safety check** — After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

Listening caution

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion-and, most importantly, without affecting your sensitive hearing.

We recommend that you avoid prolonged exposure to excessive noise.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing.
Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.
To establish a safe level:
- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:
- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Manufactured under license from Dolby Laboratories.
"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

"DTS", "DTS-ES", "Neo:6" and "DTS 96/24" are trademarks of Digital Theater Systems, Inc.

The XM name and related logos are registered trademarks of XM Satellite Radio Inc. All rights reserved.

Product information

For product information or assistance with product operation:
In the U.S.A., refer to "Customer Services Directory" on page 50.
In Canada, contact the Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, or visit the website (www.panasonic.ca), or an authorized Servicentre closest to you.

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____
_____
TELEPHONE NUMBER _____

The model number and serial number of this product can be found on either the back or the bottom of the unit.
Please note them in the space provided below and keep for future reference.

MODEL NUMBER SA-XR700

SERIAL NUMBER _____

CAUTION!

DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.

CAUTION!

Do not place anything on top of this unit or block the heat radiation vents in any way. In particular, do not place tape decks or CD/DVD players on this unit as heat radiated from it can damage your software.

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HDAVI Control ™ is a trademark of Matsushita Electric Industrial Co., Ltd.

-If you see this symbol-

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.
If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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New Jersey 07094
http://www.panasonic.com

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